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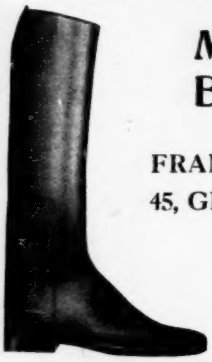

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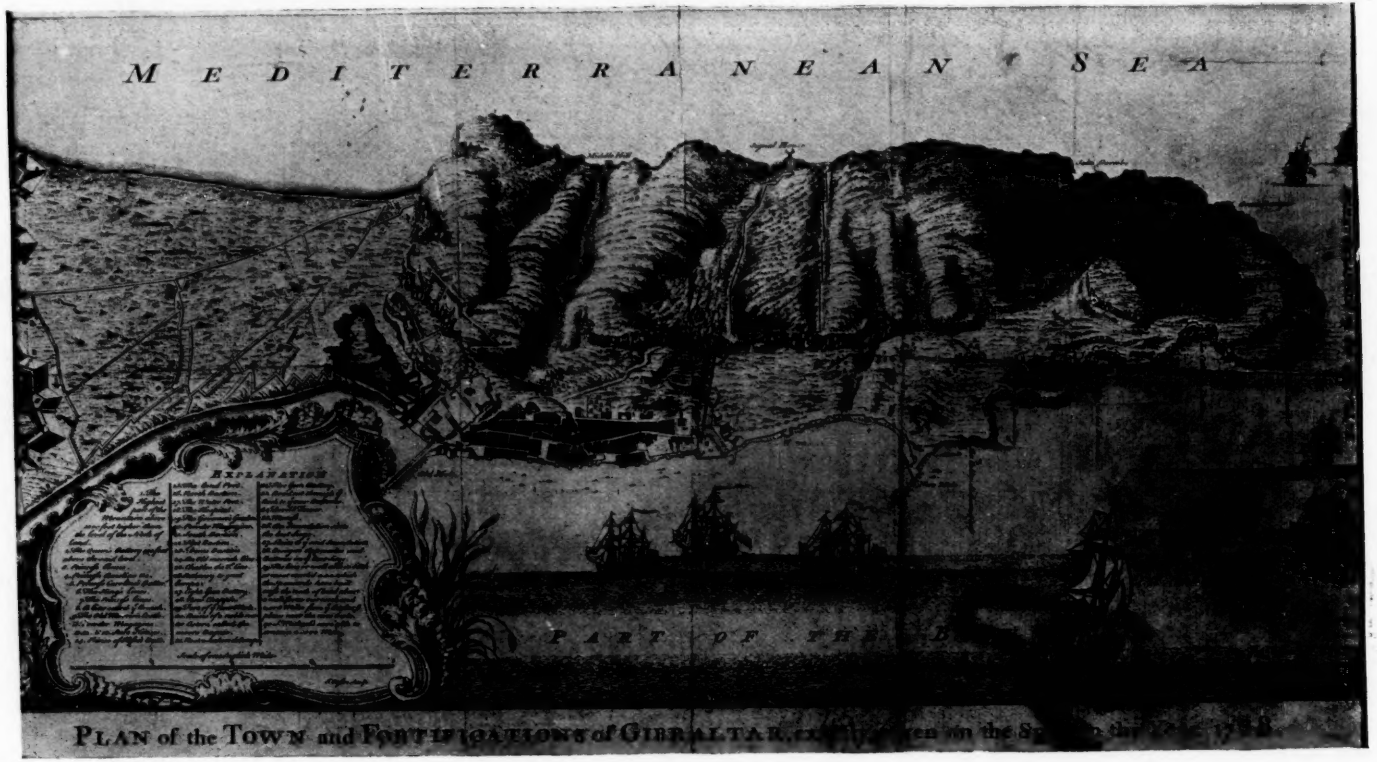

PLAN of the TOWN and FORTIFICATIONS of GIBRALTAR, [illegible] on the Sp[illegible] the [illegible] 1[illegible]

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And I Declare that the receipt of the Secretary, or other proper officer for the time being of such Institution, shall be a sufficient discharge for the same.

ERRATA—MARCH JOURNAL, 1910.

Page 328, line 25. *For* "**Tanon-Morale Farm**" *read* "**Tanon-Morâle Farm.**"

Page 328, line 27. *For* "**Villeve**" *read* "**Villevé.**"

On plate 1. *For* "**Orgeres**" *read* "**Orgères.**"

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

VOL. LIV. APRIL, 1910 No. 386.

[Authors alone are responsible for the contents of their respective Papers.]

SECRETARY'S NOTES.

I. ROYAL VISIT.

H.R.H. Princess Henry of Battenberg visited the Museum on Tuesday, 29th March.

II. CHAIRMAN AND VICE-CHAIRMAN OF THE COUNCIL.

Admiral of the Fleet Sir G. H. U. Noel, K.C.B., K.C.M.G., has been appointed Chairman of the Council for the ensuing year. Brigadier-General H. H. Wilson, C.B., D.S.O., Commandant of the Staff College, has been appointed Vice-Chairman.

III. NEW MEMBERS.

The following officers joined the Institution during the month of March:—

Captain J. Becke, 4th Bn. Lancashire Fusiliers.
Lieutenant P. C. Chapman, R.G.A.
Lieutenant B. Best-Dunkley, 4th Bn. Lancashire Fusiliers.
Second Lieutenant H. S. Graham, R.E. (T.F.)
Lieut.-Colonel G. Smith, 25th Bn. London Regiment.
Major A. G. Master, A.S.C.
Lieut.-Colonel F. A. Hoghton, Indian Army.
Colonel J. E. Harvey, R.A.
Captain G. B. Stoney, King's Own Scottish Borderers.
Captain H. W. Tobin, Indian Army.
Lieutenant A. J. Hamilton, R.N. (retired).
Captain S. T. Watson, Queen's Royal West Surrey Regiment.
Second Lieutenant Hon. E. C. G. Cadogan, Suffolk Yeomanry.
Gentleman Cadet C. F. W. Lang, Royal Military College.
Brigade-Surgeon Lieut.-Colonel T. T. Gardner, late A.M.S.
Engineer-Captain G. W. Barry, R.N. (retired).
Major (local Lieut.-Colonel) H. B. Browne, late 4th V.B. King's Liverpool Regiment.
Second Lieutenant J. O'Sullivan, Indian Army.
Lieutenant W. W. Chard, Royal Fusiliers.
Commander F. P. Loder-Symonds, R.N.
Colonel J. J. F. Hume (half pay).

IV. MILITARY HISTORY LECTURES.

A course of eight Lectures in Military History on "The American War of Secession," set for the May Army Promotion Examination, will be given on the following dates, at 4 p.m., the lecturer being Dr. T. Miller Maguire, LL.D. (Barrister-at-Law, Inner Temple):—

Tuesday,	April 19th.	Friday,	April 22nd.
,,	April 26th.	,,	April 29th.
,,	May 3rd.	,,	May 6th.
,,	May 10th.	,,	May 13th.

The fee for the course of Lectures is one guinea for members of the Institution and two guineas for non-members. Application to attend, enclosing the fee, to be addressed to the Secretary, Royal United Service Institution, Whitehall, S.W.

V. CHANGE OF ADDRESS OR RANK.

The attention of members is called to the necessity for communicating any change of address or of rank to the Secretary. It is also further essential that such notifications should be made in writing. If such changes are not notified, members will themselves be responsible if their JOURNALS fail to reach them through being wrongly addressed. The Council desire to intimate that it is quite impossible, with the small staff of the Institution, to follow the change of stations of officers as shown in the Army and Navy Lists. Only one change of address can be registered on any one occasion.

VI. ADDITIONS TO THE MUSEUM.

6069. Miniature Portrait of Captain H. Cobb, who commanded the *Kent*, East Indiaman, destroyed by fire. The ship was one of 1,350 tons, left the Downs on 19th February, 1825, and in the Bay of Biscay encountered a dreadful storm and accidentally took fire. The *Cambria*, Captain Cook, bound for Vera Cruz, providentially hove in sight, and nearly all on board were saved. The *Kent* blew up on March 2nd.

Given by Mrs. Westmacott.

6071. Officer's Belt Buckle, Royal North British Fusiliers.

Given by Miss Capel Rose.

6072. Piece of a large quantity of Boer Ammunition (some 2,000,000 rounds) destroyed near Bethlehem, O.R.C., on 31st July, 1900, when Commandant Prinsloo and his force surrendered. The specimen shows a cartridge case of all the three kinds of ammunition used by the Boers, viz., the Martini-Henry, the Steyr and the Mauser; the Mauser clip can also be seen embedded in the molten lead.

Given by Captain W. E. C. Tanner, Natal Permanent Militia Forces.

6073. Panel taken from the side of the Railway Carriage used by President Steyn, O.F.S.—*Given by H. Vawdry Capon, Esq.*

6075. Officer's Shako Plate and Belt Buckle of the 81st Regiment.

Given by Lieut.-Colonel W. H. M. Jackson, late 81st Regiment.

6076. A French Soldier's Birth and Baptismal Certificate found on the field after the Battle of Waterloo, 18th June, 1815.

Given by Lieut.-Colonel W. H. M. Jackson, late 81st Regiment.

3362. Collection of Collingwood Relics, including:—

Flag Officer's Gold Medal, as Second-in-Command, for the Battle of Trafalgar.
Gold Medal for the Battle off Cape St. Vincent.
Crystal Seal with motto "England expects everything: men do your duty."
A Ring with four seals.
Brooch marked "C.C. 1790."
Bracelet with Miniature Portrait of Lord Collingwood.
Medal for the Coronation of King George IV.
Three Swords originally the property of Lord Collingwood.

Deposited by Rear-Admiral H. E. P. Cust (Hydrographer of the Navy).

VII. LECTURES.

The Lecture by Colonel Lonsdale A. Hale, on "The People's War," has been cancelled.

EXPLORATION IN SOUTHERN NIGERIA.

By Captain E. A. STEEL, R.F.A.

On Wednesday, 3rd February, 1909.

Colonel G. V. KEMBALL, C.B., D.S.O., R.A., *p.s.c.* (Assistant Director of the Territorial Force), in the Chair.

BEFORE proceeding to describe that portion of Southern Nigeria between the Niger and Cross Rivers, with which we are chiefly concerned, a few words about the discovery of the colony, and our possession of it, may not be out of place. The early explorers and discoverers of the Niger River do not seem to have been favourably impressed with the Delta portion, for it was let severely alone, and greatest attention was paid to its upper reaches. At the beginning of the 19th century, the exploration of the upper river, which had hitherto been supposed to be identical with the Nile or Congo, began, and Mungo Park traced the course of its upper reaches, losing his life in the rapids of Boussa. During 1830-1860 our knowledge of the interior was greatly enlarged by the travels of Lander, Barth, Clapperton, and others, but it was not till 1881 that a Charter was applied for for the National African Company by Mr. Taubman Goldie (now Sir George Taubman Goldie). This was granted in 1886 to the Company which has now become the Niger Company, the British Protectorate of the Niger Districts (Oil Rivers Protectorate) being announced the previous year. In 1900 the territories of the River Niger Company were changed from being called the Niger Coast Protectorate to the Protectorate of Southern Nigeria, the administration being transferred to the Colonial Office. Although a Protectorate had been established since 1885, very little authority was exercised away from the coast and banks of the Niger and Cross Rivers, the natives resenting any intrusion by anyone. Consequently, the opening up of the interior had to be carried out mostly by expeditions which, however, could only operate during the four or five months of dry weather, and progress was very slow. So much so that by 1904 our authority only extended inland from the coast to a distance of about 50 miles, and a few miles inland only from the Niger and Cross Rivers (about 100 miles apart).

During the years 1904 to 1908, a large track of hitherto unexplored country, roughly an area of 3,500 square miles, to the north of this has been brought under Government control. This portion had never before been visited by any white man, or even any responsible black man, as far as could be ascertained, and owing to the reluctance of the various tribes to admit anyone into this country, a strong expedition was very necessary to enable any progress to be made at all. Further away to the north are still more pagan tribes, of whom very little is known at present, except their reluctance to have anything to do with the Government or allow anyone into their country; that they are full of self-assurance is evident from the insolent messages and presents of guns and gunpowder which often arrive by emissaries for the nearest political officer, expressing the hope that the "white man" will "now" not fear to come, for "we are ready to fight him." The most dreaded of these tribes, at any rate, by their enemies, are the Munshis, on account of the deadly poison with which they smear their arrows. Its effect is so deadly that death invariably ensues within a few minutes after the arrow has pierced the skin.

Another warlike race are the Ihnis, directly bordering on the area about to be described; but these tribes will require "individual attention" later on, on account of their intractability, and their southern boundary has so far always been the northern limit of any active operations, owing to the enormous area affected should they be interfered with. *Festina lente* is the rule in these parts. So, to return to the area under discussion, having neighbours of this description, it is not to be expected that they themselves should be much better.

The people of this region may, as a whole, be described as savages. They are all related in some way or other to the Ibo race, which is the predominant race east of the Niger, though the several tribes met with each have their own dialect. Those bordering on the Niger and Cross Rivers, who have had the advantage of coming into contact with civilisation, and are supposed to be under Government control, only continue their barbarous customs secretly; but as we gradually reach further inland so do the people become worse, until we get to the Onichas, Ahiaras, Obowus, and such like, amongst whom human life is held extremely cheap. But before proceeding to describe their country and characteristics, it is necessary to say a few words about the "Aros," who are scattered all over this part, sometimes in twos and threes, sometimes in settlements, from the Cross River to the Niger. Their influence is predominant over these pagan tribes, and as they have no good to say about the Government, their presence is a continual thorn in the side of the administration. They derived their power from the notorious "Long Juju," situated in a ravine near Arochuku, and no important dispute could be settled save by reference to this oracle. As the tribe supposed to be specially

favoured by it, the Aros were able to make gain of it, both by propitiatory offerings and slaves. It also gave them power to penetrate and work their baneful influence upon these superstitious tribes of the interior, who otherwise would admit no strangers to their country, and also the power of removing anyone opposing or "even desirous of opposing" their authority. This dreaded Juju oracle at Arochuku was destroyed during the military operations of 1902, but not so the Aros, who immediately gave proof of their superior intelligence and "power" by adapting themselves to the new conditions of British administration, and living by the proceeds of systematic blackmail on the easily beguiled natives. This is one of the chief difficulties that an exploring expedition has to contend with, for it takes years of tactful administration to dispel this Aro influence. These latter are easily distinguished by their intelligence and superior clothing from the local natives. It would be very interesting to know the past history of these Aros. How they came to be considered specially favoured by the Long Juju, and also superior to all their neighbours, both intellectually and physically?

Having thus described the "influences" which were already at work in this region before our arrival, and the tribes on its borders, let us return to Onitsha, on the banks of the Niger, which was then the headquarters of that portion of the Protectorate, and from where the first expedition, consisting of about three hundred officers and men, made its start. The portion allotted was a stretch of country from Ogrugru to Oguta, and about 25 miles inland from the Niger, over 1,500 square miles. Most of this was unknown, the inhabitants refusing to permit either European or Native traders into it, though they carried on a considerable trade themselves through middle-men with the various "factories" on the Anambara Creek, Niger River, and Oguta Lake. A start was made from Ogrugru, on the Anambara Creek, in November, in a southerly direction, and a halt was made at a town called Obukpa, the most important in the district, on the second day. From here small parties were sent out, once opposition had ceased, and the country mapped by means of compass and measuring wheels. Having more or less fixed points in Ogrugru, Onitsha, and Oguta, the work presented little difficulties, and in January an advance was made to Enugu. Here the main column stayed a couple of months, carrying on the work of mapping, and a site for a new station was chosen at Oka, 25 miles east of Onitsha. February and March were spent at Umoogi, and the country between it and Oguta mapped. This part of the country was found to be very low, and is inundated during the rains. Owing to the dense population and thick nature of the bush, and there being no roads, this work of mapping was very slow, for it is quite easy to pass within a few hundred yards of a village and not know of its existence. It was quite impossible at any time to get a view at all, or any compass bearing of distant objects.

In April the work of the column ceased, owing to the hot weather and the rains, when travelling is impossible, with the exception of consolidating the work done, correcting names of towns, settling tribal boundaries, etc.—E 22a—P, till the following November, when a large expedition of over seven hundred rank and file was concentrated, half at Oka, and half at Bende. The map being a blank, no definite instructions could be given as to the route to be followed by each column. The initial idea of the officer commanding was that each column should start at the same date from these two places and effect a junction at some suitable imaginary point, Z, the bearing of which from each place was settled beforehand. The point Z was chosen with due regard to political and geographical reasons. It should, if possible, be on the northern boundary of the Ahiaras and Onichas [1] and Obowus, which would facilitate dealings with these truculent people, as it would then, with Bende and Owerri to the south, form a triangle of posts round the country; it should also be fairly central for mapping the country, and, if possible, situated on the River Imo, which was known to run through these parts, and which forms the eastern and western boundaries of the tribes along it. The column from Oka, moving in a south-easterly direction, passed through magnificent undulating country, fortunately meeting with little active resistance. No halts were made except for the night, when the day's route was mapped and the approximate position noted. The method of sketching employed, viz., with prismatic compass and "perambulator" wheel, proved very satisfactory, as the latitude and longitude of Onitsha and Bende were fairly accurately known. After five days' marching this column arrived at Z, the actual meeting being facilitated by means of star shell, which were fired at night by the Bende column from Z, where it had arrived two days previously. Its progress had not been so uneventful, for two days' march outside Bende the natives of Nkpa set up a stout opposition. They were easily driven out of the stockades, but the question of guides became serious. Even when a native was caught, he professed to know nothing about the next town, either its name, or the way to it, saying he had never been out of his own compound. This to a certain extent was found to be true, for in these parts it is as much as any native's life is worth to leave his own village. He is kidnapped and sacrificed, and then tied up on to a sacrificial stake in the market-place in order to keep the "white man" out. Consequently, there is no trade, no paramount chief; each village being entirely on its own and ignorant of its neighbours. They do not fight each other—they are too great cowards for that—but simply lie in wait for any unfortunate neighbour who happens to stray beyond his boundary. Consequently, the third day out the column had to find its way in the dark, as it were,

[1] Onicha, Onitsha, or Onitcha, is a very common name in these parts. They have nothing to do with each other.

a halt being made every hour to plot out the position on the map. An advance was then made by the bush path, whose direction seemed to correspond best with the bearing of Z. By midday the column arrived at a large market, where a human sacrifice had just been completed. Here a halt was made, and as it was imperative to catch some one who could tell us where we were, a party was sent out for this purpose. A tremendous noise began on all sides, guns going off, war-horns being blown, to call every one together, and shouting, this being to frighten us away. Eventually the party returned with a very decrepit old woman (the men had all run away), who, as soon as she was calmed (for she thought her last hour had come) informed us the place was Omo Allum; but she knew nothing of the next place, which, according to her, contained "very bad" people. She also informed us their boundary was the great big river a little way further on, past which none of them ever dared to go. When asked who had sacrificed the human being in the market-place, she said they never did "such a thing," and it had been done by a neighbouring tribe in the night, so as to get them into trouble, and also because they thought their "Juju" wouldn't let the "white man" pass through if they sacrificed to him! So having admonished the old lady to guide us properly, the column advanced. The river she had spoken of was, no doubt, the Imo, and here we should find Z, and be able to link up with the Oka column, and shake off the uneasy feeling of wandering about in a hostile country, not knowing where we were.

After half-an-hour's march along a gradually descending path through dense bush, the column reached the river, which was here unfordable, and only to be crossed by a rotten suspension bridge, of tie-tie, which the natives on the opposite bank were just beginning to cut down. We had surprised them, so they contented themselves with keeping up a heavy fusilade from the opposite bank, and were only driven off by a large party crossing by a ford higher up and taking them in flank. It was late in the afternoon when the column crossed over, and here, in a nice clearing, we formed a camp, which, from our map, turned out to be approximately Z. At this spot we had to wait till the Oka column arrived, the time being spent in making a large base camp, trying to get information of the surrounding country and guides. It was most difficult. Every native we happened to catch "of course" had never been outside his village. All they knew was that everyone all round were "very bad" people. On the fifth day the Oka column arrived, but our plans were at this time altered by the news that Dr. Stewart, who was starting from Owerri to go to Calabar, had taken a wrong road, and ridden on his bicycle into the very Ahiara and Onicha country, *i.e.*, north of the Bende-Owerri road, which we were about to deal with, and had been cruelly murdered. Consequently, the whole attention of the columns was concentrated on this portion first, viz., the triangle Bende-Owerri-Z.

It was not till the end of February that this portion had been properly mapped and pacified, as well as a portion eastwards, and a start westwards was then made. The objective was the Awo country. Here another camp was made, and a small column left to map this portion and join it up with Oguta and Owerri, whilst the headquarters and remainder marched north, and another base camp was made at Eziama, which the Oka column had passed through in November. The River Imo was found to be very much smaller here, only about 3 feet deep and 20 feet wide. This river, called the Opobo in its lower reaches, is one of the largest in South Nigeria, and, consequently, the finding of its source, according to the natives quite close, was an object of especial interest. With this object in view, a party went out, and after marching seven miles across hilly country, the town of Omaka was reached. On the far side we suddenly came to a deep ravine; descending the precipitous and thickly-timbered ground, we found a huge rock, at the base of which three springs welled out, converging in a few yards into one. This rippled over the rocks for a few yards, then fell clear away some 30 feet, and then ran away down the ravine. At the bottom of the waterfall were numbers of Juju houses with painted guardian images supposed to protect the waters. The whole was fenced round with the greatest care, for the natives hold it in the greatest awe and superstition.

The next two months were spent in sketching the country round Eziama, and joining up the surrounding country we had already done. On 30th April operations ceased, for the hot weather had set in; besides, everyone had been six months hard at it, and were beginning to show signs of fatigue. A site was chosen at Omoduru for the new station, from which this district was to be administered, and the expedition broke up, one company being stationed at Omoduru to look after the newly pacified tribes. During the rainy season, June to September, no fresh work was possible. During the dry weather, 1906-1907, several small parties were continually out consolidating the work, which had been already done somewhat hurriedly, necessarily so when under active service conditions. The names of several towns which had been put down wrong the previous year were corrected, and, most important of all, the tribal boundaries were all settled. A little piece north-east of Eziama, up to the Ihni boundary, was further mapped, this marking the limit possible, for the Ihnis don't intend to let anyone sketch their country without a fight.

4a. *Relief of Land.*—What is the nature of this country between the Niger and Cross Rivers? It may be summed up in a very few words. It is entirely bush country, though, perhaps, not so dense in some parts as nearer the coast, and open patches used for cultivation here and there are met with. No view of any of the country was obtained until we arrived in the Uturu District to the north-east. Here the character changes. Hills of from 1,000 to 2,000 feet and grass country,

and low scrub with an occasional patch of forest, relieve the monotony of the gently undulating bush country, and the accompanying suffocation that seems to pervade it. Mountains there are none; the highest known hills (Oban Hills) in the colony are barely more than 2,000 feet high, and standing on one of these hills in this Uturu country a superb view is obtained—a great forest occupies the valley in the foreground; no village or palm clearing, not even a solitary hut intrudes upon the vast loneliness of the scene. Away to the north and north-east, as far as the eye can see, rise innumerable peaks, probably reaching 5,000 feet, in at present unknown country, predominating over the lonely valleys that lie at their feet, while in every other direction the whole land is enwrapped in an impenetrable mantle of bush and forest growth that characterises the west coast. Here we had found indeed the dividing line. There is only one river of any importance in this area, the Imo, the source of which we discovered. This river never dries up, and always has a respectable flow. In the rains it swells tremendously, and overflows its banks for miles. There is, however, nearly always water to be found everywhere; small streams, which rise very suddenly, and are to be found in almost every depression in the ground, owing to the tremendous rainfall and the saturation retained in the "bush." Two other rivers, the Njaba and Orashi, were both traced to their source, and were found to end in a succession of pools in the dry weather. They both flow into the Oguta Lake, and in the rainy season the Orashi, which flows on into the Niger, swells to such an extent that large steamers come up into the lake and carry down the year's supply of palm oil that is collected at Oguta.

On the slopes and summits of the hills the surface is scattered over with many stones and boulders of rock, and in the Uturu and Bende District an extensive series of sandstone and igneous rocks were met with. Here, too, we see the number of oil palms—that source of wealth of the whole west coast—gradually diminishing. Towards both these mighty rivers it flourishes abundantly; but as we trace it towards the interior, and also northwards towards the Uturu and Oka country, so it gradually diminishes, and the natives only obtain enough for their daily consumption. The cotton tree is common all over, nearly every market place having an enormous cotton tree. At its base the trunk throws huge buttresses, sitting on which the young "men" spend most of the day, smoking and drinking, while their "mammies" do the work.

Southern Nigeria is a poor hunting ground—this portion especially so. Very few elephants have ever been seen here, though very large herds exist in the Delta regions to the south and also to the north, where they are hunted by Hausa hunters. The West African baboon inhabits the forested portions, and is described by the natives as being big enough to kill an unarmed man. Such a one, however, we never saw. With some they are loked upon as sacred. The Anambara Creek, on the extreme

west of this area, affords the best shooting obtainable, and here the hippopotamus and buffalo are met with. At times we came across a few herds of bush buck and a fair amount of francolin and guinea fowl, but taking it all round it was a very poor game district. None of the larger buck (Cobus Cob) met with much further east were seen. Their domestic animals include very inferior goats, sheep, cows, pigs, and fowls.

White ants abound, the queen and the cell in which she is encased being often brought for sale and are eaten by the natives in these parts. They are a terrible scourge, and no wooden structure seems proof against them. The driver ant, too, is a great nuisance; these creatures travel in immense hordes, and are so destructive of all living creatures that come in their way that they drive everything before them. One morning we found our chicken run entirely denuded of chickens by a midnight raid of these insects during one of their migratory periods, and another night we were all awakened by the noise of the goats and sheep—about 50—which were attacked in their pen. We only managed to save a few of them.

The typical characteristics of the various tribes in these parts are, in the main, those which are common to all savage peoples. These negroes are sometimes of so deep a brown that the skin appears to be quite black, sometimes their skin is as light as a mulatto's. Their eyes are dark, hair black, and is always of a woolly texture; to this rule there are no exceptions; it is the one infallible sign by which the race can be detected. Their lips are not invariably thick; in physical appearance they differ widely. Their average physique is decidedly inferior to other black races, though, being almost nude, they appear to be taller and bigger than they really are. There are some exceptions, and the reason for these can be attributed to the influence of geographical conditions, or their different modes of life. The natives of the Onitsha and Oguta Districts on the Niger are tall, well shaped, and active, no doubt due to their more energetic life, for they are keen traders and good watermen. The colour of the skin is a dark chocolate, freely marked with tribal cuts. Here and there one has a coal black skin, which is much admired by the natives themselves, and, being kept clean by daily baths, is smooth and shiny. The Oka people, bordering on the Onitsha District, and the Bende people in the south-east of this area, and the Elugus to the east, represent also fine specimens of natives, and this may in a way be due to the comparatively hilly nature of their country, Bende particularly so. Oka, which was established in 1905, is also the headquarters of a very large community of blacksmiths and coppersmiths, and men from here are found in the most distant parts of the Protectorate. The Bende natives are well known everywhere for their extraordinary physique, and are used in preference to any others as "carriers." If there is any manual labour required, such as for road making and clearing forest, it is always more economical to bring a few hundreds of Bendes than any amount

of local labour. These people have few of the characteristics of their neighbouring tribes. They are extremely tractable, hard working, and civil; they hardly indulge in barbarous customs, their faces are barely marked, and they have few superstitions, ideal qualifications indeed in a savage race; but, unfortunately, there are too few of them, for their country only extends over an area of about 300 square miles. Here, again, is an interesting study. How came these people, surrounded by the most despicable savages in the world, to be so superior? Surely it cannot be due entirely to the advantage they have in living in a hilly district. There, is also much variety among the negroes in respect to manners, mental, self-government, and mode of life. Some tribes live only on the fruit of net and bow and arrow, eked out with insects and berries and shells. Property is ill-defined among them. If a man makes a canoe, the others use it when they please. If he builds a better house than his neighbours, they pull it down; other tribes are pastoral, or have large farms. Other tribes, which include the Ahiaras, Onichas, Obowus, Nkwerris, Awos, and which occupy the interior, are in a very low ebb of civilisation. They have no physique, no intelligence; their habits are of the dirtiest description, and nothing gives them so much pleasure as the sacrifice of human blood. Their skin is much lighter than usual, being of a dirty mud colour. They have no occupation, for they won't indulge in trade, and the surrounding tribes will have nothing to do with them. However, since their country produces their daily wants, which are few, they are able to do without their patronage.

An African village in these parts is usually a scattered collection of huts (often hidden away in the bush), with walls of hurdles plastered over with mud, and the thatch projecting, so that its owner may sit beneath it in sun or rain. The door is low; often one has to crawl in order to go in. There are no windows. In the midst burns a fire which is never suffered to go out, for it is a light in darkness, a servant, a companion, or guardian angel. It purifies the air. Bows, quivers, knives, nets hang on the walls, while in a corner is a large earthen jar filled with water. Let us suppose it is night. Four or five black forms are lying in a circle with their feet towards the fire, and a dog with pricked up ears creeps close to the ashes which are becoming grey and cold; dawn gradually appears, and with it the sleepers rise and roll up their mats, which are their beds. The man, perhaps, takes down his bow and arrows and knife and goes out into the bush. The women replenish the fire, and lift up an inverted basket, whence sally forth a hen and her chickens, which make at once for the open door to find their daily bread for themselves. The two or three goats, which have also shared the hut, do the same. The women take hoes and go to the plantation or take their pitchers to fill at the brook. The air is damp and cold, and the trees and grass are heavy with dew, but soon the sun begins to shine dispersing the dew, which drops from the trees like rain. The birds sing, the monkeys

chatter, the flowers expand their drowsy leaves ready to receive the morning calls of the most gorgeously coloured butterflies and bees, and the forest begins to hum like a great factory awaking to its work. In the midst of every village is a kind of shed, a roof supported on bare poles. It is the palaver-house in which at this hour the men generally sit and debate, smoking and drinking during the morning. Oratory is the African's one fine art; his delivery is fluent and his harangues accompanied by gestures of every description. This building is also the club house of the young men, and there they pass the heat of the day seated on logs, which are smooth and shiny from use. At the hour of noon, their wives or children bring them palm wine and food; and then all is still; it is the hour of rest for both man and beast; all nature sleeps. Towards dusk the boys go out to collect their pots of palm wine, which they have hung up in the trees in the early morning. The women and girls pay another visit to the brook to fill their jars. The sun turns red and casts great shadows across the street; strange perfumes arise from the earth, the women bring their husbands the gourd dish of boiled yams and plantains, seasoned with palm oil and chillies or dried fish, and when the meal is ended and washed down with copious draughts of fermented palm wine, the tom-toms give the signal for all to gather together in a broad clean swept market place, where the night is spent in further drinking and dancing. In the early hours of the morning they stagger home to sleep till the dawn ushers in a new day. Such is a typical picture of savage life.

A lot has been written about the gin traffic on the coast, and how it is ruining the natives. Among those last-mentioned tribes the consumption of gin is infinitesimal to the amount consumed by the natives in any other part of the Protectorate, and yet they represent the lowest type in every respect to be found anywhere, though they are off-shoots of the predominant Ibo race. Some people would have us believe that this imported gin is the ruin of the natives and the cause of their degeneracy. Yet how comes it that their brothers of the interior, to whom gin is a luxury, are far more degenerate than they have ever been? The reason is this: that this palm wine, when left to ferment, is much more harmful than any amount of gin, and far better it is that they should buy gin, which is an incentive to trade at any rate, than that they should lead the lazy life of these people, who find in this fermented palm wine an ever-ready means of immediate excitement, and under the influence of which they commit every form of atrocity.

Superstition.—The natives of these parts are extremely superstitious, and this does not only apply to the pagans but also to those who have been brought up in civilised surroundings. As already mentioned, most of these natives wear some kind of charm round their neck or waist, in the belief that they are thus protected from illness or death from their enemies. When, however, the talisman has lost its supposed power, and

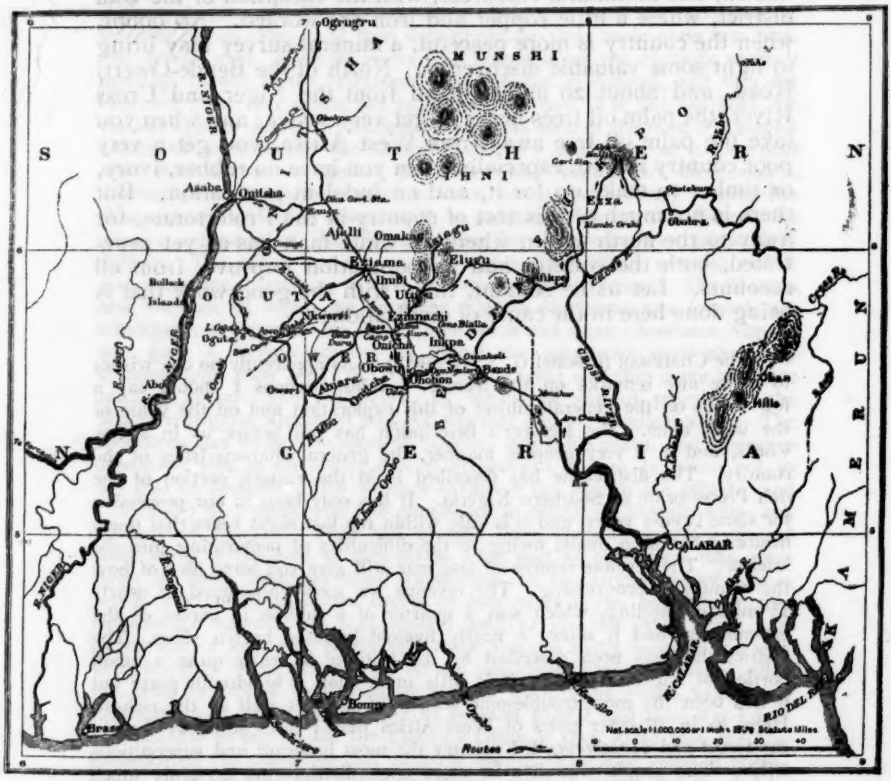
its wearer feels the hand of death upon him, he submits to his fate—he is wanted by the fetish. To many places and things they attach a superstitious veneration. The rock found at the source of the River Imo is considered sacred, and as such is carefully guarded, every village has its sacred grove, surrounded by human skulls, chatties, and rotten egg shells on sticks. They believe that a spirit haunts the locality of a murdered man, or their sacred grove at night, and no native would pass near such a place during the darkness. Any unusual phenomenon is by them attributed to a supernatural agency. Not only has a village its good spirit, but also its evil spirit, and when any misfortune of any kind overtakes a village, a process of driving out the latter is indulged in with the help of much noise, and everyone beating the walls of their huts with sticks. In fact, the life of the savage is by no means a happy one. They are like the wild animals, engaged from day to day in seeking food, and ever watchful against the foes by whom they are surrounded; the men who go out hunting, the girls who go to the village brook with their pitchers, are never sure they will return, for there is always war with some neighbouring village, and their method of making war is by ambuscade. But besides these real dangers, the savage believes himself to be encompassed by evil spirits, who may at any moment spring upon him in the guise of a leopard or cast down upon him the dead branch of a tree. In order to propitiate these invisible beings his life is entangled with intricate rights; it is turned this way and that way as oracles are delivered or as omens appear. It is impossible to describe or even to imagine the tremulous condition of the savage mind, yet it is easy to see from their aspect and manners that they dwell in a state of never-ceasing dread.

When we entered this country from "Bende," in 1906, we fired a "star" shell, to try and communicate with the column marching from Oka. This was seen by the natives for miles around, and its effect was extraordinary. The Ahiaras, Onichas, and their warlike friends, who had spent years in building the most marvellous trenches and stockades to guard every possible approach to their country, told us that they had meant to give us a very warm time, but the star shell was too much for them. Anyone who could do this must be supernatural, and they fled into the bush and kept up a guerilla warfare for months, never daring to show themselves. Others from the north, doubtful at first as to whether they should fight or not, came in to see the "white" man, and asked what they could do to be saved. As another instance, a boy of mine said he couldn't possibly come out after an elephant with me till he had been to his village and got some "medicine," which would protect him. And, as a last instance, in January, 1906, when a small column was operating in the Ohonhon country, north-west of Bende, it had a lot of trouble with a town called "Omo Oga Ngolori," the reason given being that when the Long Juju of Aroch Uku was destroyed in 1902, it was brought to this place as being

out of reach of the Government, and the Aro priests tried to re-establish it here, and carry on their former customs. At any rate, it was reported to be a most powerful Juju, and meant certain death to anyone who entered. A visit was made to it (no native would show us further than the entrance, which was an oval-mouthed cave in the rocky side of a hill). All round were sticks stuck in the ground supporting skulls, eggs, bones, while blood was splashed over the walls; on the right of the entrance was a large basin of water, about 18 inches deep, hewn out of the rock, in which water trickled through from the roof, and in which a few fish glided about. Further on stood a large long-shaped war drum, hewn out of a tree trunk, on the ground. On top of it was a slit, over which the necks of victims to be sacrificed were cut. Whilst examining this, one of the officers made some remark, setting up a series of echoes, which resounded from the walls of the cave; it certainly was most queer, and was altogether too much for the few soldiers and others who, out of curiosity, had followed us in, for they dropped their carbines and fled out.

Marital Relations.—The marital relations amongst these peoples vary somewhat according to their state of civilisation. Amongst all polygamy is the rule, the reason given by the natives being that it is impossible for one woman to do all the work of the house, look after the children, prepare and cook the food, fetch the daily supply of water (often an arduous job), cultivate the plantation, and go to market. And the reason is, that the African is an exceedingly hungry person. It is their custom to eat several times a day when at home, and the men spend most of their day sitting in the palaver house or market place, while the women bring the food all day long. One wife could not possibly do this. Besides, the African lady encourages it, for she says: "The more wives the less work." Amongst the Ahiaras, Onichas, Obuwus, and the lower class of pagan tribes in the interior, there is very little form of marriage. As soon as the man has the means he pays the parents what they want in the shape of goats, cows, beads, money, and takes the girl. No ceremony at all. The more wives he has indicates a richer man, and that he will be better looked after. If, of course, they can manage to seize a woman from the neighbouring tribe while she is fetching water or working on her farm, so much the cheaper. With this method in vogue for centuries, no wonder that it is as much as a native's life is worth to go out of his own village, and that the country is so backward. With the tribes of the Bende, Afikpo, Oguta, and Onitsha districts, a girl is betrothed to a future husband when only a few years old, he giving her presents from time to time as well as her parents. Infant marriage is apparently not in vogue at all. Before a girl reaches a marriageable age, she undergoes the fattening process, during which she is generally painted in some way, after which she is painted over with red camwood by her husband. The

various tribes inter-marry very little. Twins are regarded with terror, from the Niger to the Cross River, with very few exceptions. With these tribes in the interior, it was the custom to kill them and the mother too. With the River tribes it is the custom to drive the mother and infants out of the community; the Igaras, up the Niger, to show that this custom varies, welcome twins as being lucky.



Religion does not absorb much of these peoples' time. True, it is that every village has its Juju House, sometimes several, generally clean, well kept, and every compound has its deity, but if you ask these people what they are for, or what they do, they will simply tell you: "Our forefathers had them and so we must." The Jujus generally consist of several very ugly carved images of human beings, all highly painted with several colours, under a shelter of some sort in every market place, the paths to which will generally be lined with rows of earthenware chatties, rotten with age, and filled with eggs, perhaps, or bones,

These pagan natives all believe in a future life of some sort—that death is only the passing from one sphere of life to another, that other being, perhaps, a sacred tree, wild beast, their own children, or, perhaps, their spirit may wander about frightening anyone who may come across it. In fact, their beliefs are very mysterious; but they are hard to find out, owing to the unreliability of one's interpreters. The country, as at present known, has no natural resources, with the exception of the Oka district, where a little copper and iron are worked. No doubt, when the country is more peaceful, a mineral survey may bring to light some valuable discoveries. North of the Bende-Owerri Road, and about 20 miles inland from the Niger and Cross River, the palm oil trees begin to get very scarce; and when you take the palm oil tree away from West Africa, you get a very poor country indeed, especially when you have no rubber, ivory, or timber to make up for it, and an indolent population. But there is not much of this sort of country in the Protectorate, for away to the north again, where no white man has as yet penetrated, both the country and its population improve, from all accounts. Let us be content, then, with the good work that is being done here in the cause of civilisation.

The CHAIRMAN (Colonel G. V. Kemball):—As apparently no one wishes to make any remarks on the lecture, I think perhaps I should say a few words on the general subject of this exploration and on the value of the work done. The lecturer's description has put before us in a few words, and in a very graphic manner, the general characteristics of the country. The district he has described is in the eastern portion of the rich Protectorate of Southern Nigeria. It has only been in our possession for some twenty years, and it is only within the last eight years that much headway has been made, owing to the difficulties of penetrating into the interior. The revenue returns of last year will give you some idea of how the country is progressing. The revenue for 1907-8 amounted to nearly 1½ millions sterling, which was a quarter of a million in excess of the expenditure, and it shows a nearly fivefold increase in ten years. The district that has been described by the lecturer is really quite a small portion of Nigeria; in fact, it is little more than a hundredth part; but it has been the most troublesome section of any, as well as the richest. Here, as in all other parts of West Africa that I have seen, we find in the forest and densely-wooded country the most ignorant and superstitious tribes. The people who live in more open districts are certainly much superior, both in intelligence and in physique. These very ignorant and superstitious people absolutely blocked all progress in Southern Nigeria, and it was not for many years that the Government decided on sending a military force to open up the country. In 1902, the Aro Expedition destroyed the power of the great Aro Confederacy, which had held the whole country in terror. After that came the operations that the lecturer has described to you, and they lasted more than four years. I think you can imagine from what you have heard that these operations were not altogether a picnic. As I did not take part in any of them, I am free to tell you something about them, and to say things that the lecturer perhaps could not. These savages, though very ignorant and not capable of much combination, were truculent and by no means badly armed. During the

Aro Expedition, 30,000 guns were taken out of the country; but in spite of that, when these later operations took place a great deal of opposition was experienced, and the natives were found to possess many guns. The trade gun of the country, which has a barrel about 6 ft. long, is, when well charged with slugs, a most effective weapon in the Bush. The natives are also expert in making ambushes and stockades, and conceal them very well. One particular defence of which they are fond is the digging of a pit parallel with the path, so deep that only the head of the man in the pit shows out of it, the pit being entirely concealed in the thick undergrowth. The natives lie in these pits until the unsuspecting stranger comes along, and then they discharge their trade guns into him. Our troops were, however, pretty well versed in all the methods of bush fighting, thanks to the experience they had had in Ashanti, and they did very well; but that would not have been the case if it had not been for the foresight of that great Statesman who had been at the head of Colonial affairs for some years. Mr. Chamberlain, very soon after he had to deal with West Africa, recognised that what was wanted out there was a thoroughly well-organised military force, and he accordingly formed the West African Frontier Force, with a sufficient number of officers. To raise a regiment of that force in Southern Nigeria was particularly difficult. The tribes are not at all suitable for military service, and it was necessary, therefore, to have recourse to other regions. The Hausas and Yorubas, of which the Southern Nigeria Regiment was formed, are inhabitants of countries far away to the north and west. Southern Nigeria was quite a foreign country to them; the conditions were absolutely different from their own; the food was different; and they were not very anxious to go there. However, by means of careful recruiting, the Southern Nigeria Regiment was got together and did excellent work. The operations had to be conducted by narrow, single-file paths, and whenever opposition was at all likely, careful precautions had to be taken not to fall into an ambush. This warfare exercised the wits of the officers, and I must say that those who had experience in Southern Nigeria were well up in bush fighting. They had to take these precautions every day of their lives, to imagine to themselves what sort of opposition they were likely to meet, and suit their dispositions to the circumstances. As a result they managed, in the course of four years or so, to open up this troublesome country. A high official said to me the other day, in a joking sort of way, that he thought there was not really much in the way of fighting in West Africa, that he did not know what we wanted rifles for, that he should have thought a good thick stick would have been sufficient. I do not know whether he believed what I told him; but I had the curiosity to-day to ask the Colonial Office if they could give me any statement of the casualties that occurred during those four years of operations. They supplied me with a statement, which I would like to read to you. I find that there were three officers killed and eleven wounded; fifty native soldiers killed and 306 wounded, besides 13 followers killed and 48 wounded, a total of over 400; and when you come to think that there were only perhaps 1,200 or 1,300 men in the Southern Nigeria Regiment, and never more than half in the bush at a time, I think you will say that these soldiers had their fair share of danger. The climate in which they worked was extremely damp and enervating, and in previous expeditions there have always been very heavy casualties from the climate. Anyone who reads the accounts of the old expeditions that used to start from the coast, generally naval expeditions supplemented by native constabulary, will be surprised nowadays to see the enormous casualties that

occurred from the climate. How after three or four days, or a week, of operations the force came back absolutely riddled with disease, and the extraordinary number of deaths that took place on an expedition of this sort. I ask you to remember that the operations of which we have been speaking went on for four seasons, and that between the operations our people were living in the country; but although the sickness was considerable, the mortality was nothing like what it had been in former times. Now I think every soldier who served out there would like the credit for this to be given to the proper people, and I believe that everyone will agree with me that the operations in that country were very greatly facilitated by the forethought and care exercised in previous years by Sir Claude Macdonald, Sir Ralph Moore, and by the Colonial Office in founding an excellent and well-equipped medical service in Southern Nigeria. Every column that went out was well provided with doctors, medical comforts and medicine, and all the proper precautions were taken. I daresay you noticed in one of the pictures, which the lecturer showed us, an officer standing outside his hut, and close to him a big jar. That was an aluminium jar containing boiled water. Wherever they were, all the water was boiled for the Europeans and put in the jars overnight, so that it was cool by the next day.[1] If all this trouble had not been taken, I am sure that the loss of life would have been very much greater than it was. The result of this four years' work was that this country, which had been a sealed book—an absolute blank on the map, and about which we could get no information at all—has been thoroughly opened up. It is now held by a few police, with a garrison here and there, and it is administered by British residents. Perhaps you would like to know what is now going on. Further away, to the north of the forest and bush country, lies the grass country, and the stony, rocky land, of which you saw some pictures. Extending between this forest country and Northern Nigeria, there is a strip of country, I suppose about 80 miles in depth, and in that country live the Munshi and kindred tribes, who have such a bad reputation on account of the poisoned arrows they use. We are responsible for the behaviour of these people, especially along the frontier, where they may come into contact with the Germans. The country, therefore, had to be explored and opened up, and columns are now engaged in doing that work. This policy of development was started by Lord Elgin when he was Secretary of State for the Colonies, and it consists in what is known as "peaceful penetration"; that is to say, all hostilities are avoided as far as possible, and wherever troops go civil administration is established. As the people are not so superstitious or truculent as those further south in the bush country, that policy has so far been successful. So far as we know there has been no fighting this year. The hostilities that were reported about Christmas time consisted of some fighting that took place between the tribes and the escort attached to the English and German Boundary Commissions, which were working along the eastern frontier. But so far as we know at present, there has been no fighting in the Munshi country, and it is anticipated that by the end of the current season law and order will have been established in that region. I hope I have not detained you too long in supplementing the lecturer's remarks, but I wished to point out that considerable results have been arrived at from the work that has been described this afternoon. Everyone

[1] In addition to this, quinine was regularly taken, and every European had a mosquito-net for use at night.

realises how much of this is due to the Statesmen, administrators and officials who have framed the policy, and created the organisation; and everyone recognises how excellently all the civil part of the work has been carried out. But perhaps in this Institution it will not be thought out of place if I call to your notice that in this process of Empire-making credit is also very largely due to the soldiers. They have been the instrument of the policy that has been laid down for them, and these expeditions have been carefully planned and successfully carried out by them. And to none of the soldiers do we owe more than we do to the British subaltern and non-commissioned officer. These men, like Kipling's drill sergeant, have formed soldiers out of mud, and I think you, at any rate, will recognise their good work in so readily risking their lives and their health in this far away corner of the Empire. It now only remains for me to ask you to pass a very hearty vote of thanks to Captain Steel for his interesting lecture.

THE USE OF MOTORS FOR THE TRANSPORT OF TROOPS.

By T. CLARKSON, M.I.M.E., A.M.I.C.E., A.R.S.M.

On Wednesday, 20th October, 1909.

Major-General Sir T. FRASER, K.C.B., C.M.G., in the Chair.

IT may be confidently stated that transport is a problem of first importance in all military operations. Engineers are directly concerned with the construction and efficient working of transport appliances, therefore I trust that it may not appear presumptive for an engineer to address a distinguished assembly of service experts upon a military question.

Recent mechanical developments have enormously increased the power of rapid movement, and at the same time given greater flexibility of action, by employing the ordinary roads instead of being restricted to a line of railroad for rapid transport. It is important to consider these developments as an asset in national defence, to the end that they may be organised and employed in the best manner.

Road motors are of various types and range in capacity from the motor cycle carrying one person to the heavy traction engine which hauls many tons. In considering the rapid movement of troops by motor the first question is to select the most suitable form of motor for the purpose. The motor cycle has too small a carrying capacity, and the traction engine has too slow a speed. The private car occupies too much road space in proportion to its capacity, and is unsuitable in other respects, which will be referred to later on.

The type of car which gives the largest carrying capacity in relation to the road space occupied is unquestionably the car that is popularly known as the double-deck omnibus. This car gives a fairly high average speed, and lends itself to standardisation by reason of its uniform capacity and power. Four of these cars can convey a company of one hundred and twenty men fully equipped at an average speed of 12 miles per hour for long distances. If necessary, in case of emergency, the speed can be increased to average 14 miles per hour. In the event of cars being put out of action, a company of one hundred and twenty men can be carried upon three cars.

Referring again to the private car. I submit that the experiment of conveying a battalion of guards by private cars to Hastings showed very conclusively the unsuitability of this car for such a duty. In fact, I do not hesitate to say that the chief value of that experiment is in showing how the transport of troops by motor should not be done. In the first place the four hundred cars which were employed on this occasion occupied an excessive amount of road space. At the start they more than filled Bird Cage Walk with a double line, besides other contingents upon the Embankment and at the Chelsea and Wellington Barracks. The cars which were used were of many different makes and powers. Practically all the makers of private cars were represented, and some makes by more than one type and power of car. There was consequently no homogeneity in this motley assemblage of motors. The seating capacity averaged between three and four men per car, some few carried five. I observed one 30-H.P. car occupying 12 feet 9 inches length of road, which was only able to carry two men in addition to the driver on the return journey. The owner of this car (who was driving) stated that he had brought three men down and their extra weight had caused an excessive defection of the springs, the mudguards fouling the wheels. This I confirmed.

Owing to the large amount of road space occupied, many of the troops had to march considerable distances to reach their motors, and there was much delay in getting the men on the cars. A soldier in full war rig found it extremely difficult to fit himself into a bucket seat intended for an ordinary person. Some of the men were permitted to remove their uncomfortable protruberances, others found a kneeling posture less uncomfortable. The speed of all the cars had necessarily to conform to the speed of the slowest, otherwise cars would lose station, and men would be separated from their officers and from the rest of their company. This did occur in quite a number of cases, and may partly explain the very excessive amount of time, about 50 minutes, that was occupied after the cars arrived, before the men were formed up ready to march away.

With a scratch lot of cars, and with undisciplined drivers, trouble is certain to arise. The troubles arose from punctures, collisions, and mechanical causes. The pneumatic tyre I consider quite unsuitable where certainty of action is required as they are always liable to cause a car to fall out of position and are so easily disabled by the enemy. On the other hand, solid rubber tyres are perfectly satisfactory for speeds up to twenty miles per hour, and will run over ten thousand miles without trouble.

The length of the column of route appears to have exceeded six miles, and some observers estimate the length at twenty miles at certain parts of the route. This is considerably more than is necessary, and such an attenuated line would involve serious risk in actual war. The length of a column of double deck motors need never exceed an average of one yard per man,

or one thousand yards length of road for one thousand men when running at twelve miles an hour. At half speed the length could be reduced one half, and when the cars are standing, the length of column need not exceed one foot per man, which allows over two yards clear space between each car when at rest.

There is no doubt that many of the private cars suffered considerable injury and depreciation by their unaccustomed duty upon this occasion, and it would, perhaps, be unwise to assume that there would be the same readiness to lend private cars for this purpose again. The private car, although unsuited for the movement of a large body of men, may perform most useful duty for scouting and for the rapid transport of officers and of messages.

Experiments with Double-Deck Cars.

The first experiment in the transport of British troops with double-deck cars was, I believe, made on the 6th December, 1908, when eighty-one men were carried on two cars a distance of fourteen miles in one hour seven minutes. Heavy rain was falling at the time, and the roads were soft owing to the previous rains, and for the first four miles there was a steady rise of about 300 feet. This experiment took place from Chelmsford to Latchingdon, with men of the 5th Battalion Essex Territorials. Ammunition and commissariat supplies were carried in a motor van. The three motors completed the fourteen miles simultaneously, and a line of outposts four miles long was got into position in 2 hours 13 minutes after leaving Chelmsford. In returning, fifty men were carried from Latchingdon to Maldon on one car without difficulty, although I consider that fifty men with rifles and other equipment is an excessive load for one car. A London double-deck car seats sixteen inside and eighteen out, under military conditions twelve inside is enough, but eighteen can be carried outside, making a total of thirty men per car and one officer, with the driver.

In the next experiment twenty-five ordinary London 'buses were employed to convey 500 men from Warley Barracks to Leigh, giving an average load of twenty men per car.

This experiment was chiefly useful in showing the unsuitability of the undisciplined London 'bus driver to operate upon country roads. Owing to this about 25 per cent. of the cars were soon "ditched," and the speed only averaged about seven miles per hour.

In considering the failure of the undisciplined London drivers on the country roads, regard must be had to the following points:—On the main London streets there is practically no camber. On country roads the camber is often excessive, and gives a bias to the steering which must be reckoned with. London roads are hard all over their surface, but country roads are softer, especially after rain, and the roadsides are generally unable to carry the weight of a large motor. The roads are narrower, and the sides are sometimes edged with grass, which

may conceal deep gulleys. The effect of getting a wheel into such a spot may be dangerous, unless the driver is experienced.

Country roads have steeper inclines and more difficult corners to negotiate than any met with in town.

Hence the necessity for drivers having special training in the management of large motors upon country roads. The work is severe upon the motors, for the stresses are frequently exceptional and far exceed the normal conditions of a town service. I do not hesitate to say that the early types of motor 'bus would be quite unequal to such a duty, but thanks to Sir Edward Henry (the Commissioner of Police of the Metropolis), this type of motor has been greatly improved. Up to its capacity it is in no respect inferior to, and in some respects is far superior to the railway for the rapid transport of men and material. With respect to the question of capacity, I estimate that there is useful work in London for at least two thousand of Sir E. Henry's improved type of double-deck car. These cars would be capable of transporting sixty thousand men, and would be ready to start as soon as the men were ready. A large number could be despatched within an hour after notification. They could call for the men at the barracks, and move on as fast as they were loaded, thus avoiding delay in marching the men to the cars or to a station. Such a power of rapid transport may be of the greatest value in time of stress, and especially so in the event of an interruption of railway communications. In any case the railway would be relieved and left to deal with the heavier traffic, such as guns, horses, etc., and the men could be carried direct to the points where they are needed, arriving fresh and fit.

Another experiment in the rapid movement of troops by double-deck motors was made by Colonel Colvin in the Yeomanry manœuvres last May. I was much struck with the admirable manner in which the four cars were used by Colonel Colvin for bringing men into action quickly. The cars were previously used to provide night shelter for some of the men, and afterwards for the rapid transport of about ten tons of regimental baggage from Wickham Market to Sudbury, a distance of thirty-five miles, which was easily done in three hours.

(It will be observed that a car of this type is also a van with the top deck available for men.)

On 10th July this year, one hundred and sixty men of the 5th Battalion Essex Territorials were conveyed on five cars from Chelmsford to Colchester, a distance of twenty-two miles, in two hours five minutes (arriving ten minutes before time).

With respect to the cost of such transport, I have proved that it can be done profitably at a half-penny per passenger mile.

One of the last tests which I have made with a double-deck steam car was for the purpose of determining how far men could be conveyed in one day. On the 22nd June this year, a car having a gross weight of about six tons, left Chelmsford at

4.30 a.m., and proceeded *viâ* Woolwich Ferry to Folkestone, returning the same day to the starting point. The total distance was 186 miles.

The following programme was prepared beforehand, and was executed without difficulty:—

Outward Journey.—Leave Chelmsford, 4.30 a.m. Water at Woolwich while waiting for ferry. Arrive at Farningham, 7.30. Halt for breakfast; water car while waiting. Leave Farningham, 8.15. Arrive Maidstone, 9.45. Replenish with fuel and water. Leave Maidstone, 10.15. Water, Ashford. Arrive Folkestone, 1.15 p.m.

The car actually arrived at the Metropole, Folkestone, at 1.7 p.m. Exactly the same programme reversed was executed on the return journey. The car left Folkestone 3.4 p.m., and arrived Chelmsford 12.3 a.m. There was a delay of twenty-five minutes for Woolwich Ferry on returning, which is rather unusual. The total running time was 13 hours 38 minutes, giving an average speed throughout of 13·6 miles per hour. The route was fairly hilly through Kent, and was new to the driver. The roads were heavy in many parts owing to the rain that was encountered.

From this trial I am satisfied that distances up to 200 miles can be covered without difficulty in twenty-four hours. There will be a certain retardation of speed with consequent reduction of distance by a large number of cars running together. The amount of this reduction will depend upon drivers' discipline, knowledge of the country, and general organisation. I am of opinion that the reduction need not exceed twenty per cent. and ten per cent. should be nearer the mark. More especially having regard to the recent improvements in the construction of the double-deck steam car, which have greatly reduced the consumption of water and fuel. It is now practicable to run for one hundred and twenty miles upon one charge of fuel and water.

Into the question of the merits of propelling forces for double-deck cars, that is, whether steam or petrol motor, I do not propose now to enter. This is a question which will be fought to a finish in the streets of London. I will only say that I know of no petrol driven double-deck car which would have an equal to such a test as the Chelmsford to Folkestone and back run in one day, and I venture to prophesy that in the battle between steam and petrol for this class of traffic, steam will not be beaten.

I trust that the time is not distant when London will have a fleet of double-deck steam cars which will be worthy of the greatest city in the world, and which will furnish the nation with a power of rapid movement for defence which it has never before possessed.

I have referred to the necessity for a special training of drivers for this duty, which it is impossible for them to acquire when engaged wholly in town work. The drivers are a splendid

lot of fellows, and when the time comes (which, I trust, is not far distant) for every man to take his share in national defence, I suggest that these men should be enrolled as a reserve transport force.

Unless they are trained and disciplined for this duty there will be a serious loss of efficiency, and the result will be disappointing when they are put to the test.

The present scheme of registration of cars for military duty appears to be quite inadequate, and I am inclined to think that a proprietor may consider himself better off not to register his cars, as he would be out of pocket while the cars were withdrawn from their usual duty. This question appears to need further consideration, and the present regulations, which, I understand, are of a provisional character, might be very usefully amended.

Stability Tests with the Double-Deck Steam Car.

As the question was raised recently of the stability of double-deck cars of the lighter model (3½-ton limit), the following tests have been conducted under police inspection:—

A double-deck steam car was fully loaded to represent a full complement of passengers, both inside and out. The car was then tilted, and it was found to require an angle of over twenty-eight degrees to bring it to approximate equilibrium. The inside load was then removed, and with the load outside only the angle was twenty-nine degrees. The top load was then removed from the high side and the car again balanced, this angle being twenty-nine and one-third degrees. The load was now removed entirely from the top, and a full load put inside. Under these conditions the angle was thirty-nine and a-half degrees, the wheels on one side of the car being lifted off the ground for a height of 36½ inches. These tests show very conclusively the extraordinary stability of this type of car, even under the most adverse conditions of load.

APPENDIX.

Draft Regulations for Troops Using Motors.

1. In loading, the outside seats are to be occupied first.
2. In unloading, the inside seats to be vacated first.
3. The seats at the front end of the cars, inside and out, are to be occupied first.
4. When entering it is more convenient if the rifle is carried upright in the right hand, and held outside the stair rail, both in ascending and descending. In descending the rifle should be held in the left hand.

5. Men riding outside must have their head gear firmly secured, as cars cannot be stopped for lost caps (confusion and serious loss of time would result). As far as possible any articles dropped will be picked up by a car which brings up the rear.
6. Men riding outside must look out and avoid the low branches of trees.
7. Care must be taken to avoid injury to the car.
8. Mud is not objected to on the floor, but it must be kept off the seats and cushions.
9. Men must not speak to the driver.
10. An officer will sit with the driver and show him the road.
11. The conductor's signalling bell should be disconnected.
12. Signallers (flag and megaphone) to be on the top of each car to pass word backwards and forwards if necessary.
13. Halt cars at cross roads or junction roads, if possible, to facilitate manœuvring.
14. Spare ammunition should be carried inside, under the seats.
15. The cars will seat 12 inside, 18 outside, total 30, and one officer with the driver.
16. Men must keep their seats when the cars are moving.

Mr. CLARKSON, in exhibiting some photographs illustrating the tilting tests, said:—The Chairman has asked me to mention the time required for preparing a car for commission or getting up steam. A car can be started from "all cold" easily in nine minutes, and after the car has been once heated, it can be usually got away inside of two minutes. The burner, I may say, is a liquid fuel burner, which can be started and got into full commission inside of a minute. The burner has frequently been lighted in fifty seconds from "all cold." I am counting nine minutes not from the time the burner is alight, but from the time the match is struck. After a car has been standing with burner out for, say, two hours, you may reckon that within two minutes you can have the car away, and if the burner is kept alight the car will start instantly.

Colonel G. R. C. PAUL, C.M.G. (late A.S.C.):—I only had a copy of the lecture put into my hand this morning, and I beg to offer you a few remarks that I have jotted down. In considering the conveyance of troops by motor transport, it is imperative that the difference between a man armed and equipped for war and the ordinary person in civilian clothing should not be lost sight of. Rifle, bayonet, bandolier, ammunition, greatcoat, haversack, mess-tin, water-bottle, are all part of the soldier to be transported, and a day's food, an emergency ration, picks, shovels, machine guns, signalling equipment, and so forth have all to

enter into our calculation. Bearing in mind these many accessories, I think the lecturer has rather overestimated the soldier-carrying capacity of the double-deck omnibus, and a self-contained section of twenty-five men under an officer or non-commissioned officer, complete with all its paraphernalia, I think is a more reliable basis of calculation than the thirty or forty he suggests. Mr. Clarkson is also perhaps unduly sanguine concerning the average speed of twelve miles an hour for his omnibus so laden; eight to ten miles per hour is more probable, especially on roads other than really broad, first-class main roads. I accompanied the Guards when they went to Hastings in motors, and as regards the unsuitability of the ordinary motor car for the conveyance of bodies of troops, I quite concur in the conclusions he arrived at as a result of the Hastings experiments. The separation of officers and men from the rest of their company, to which Mr. Clarkson referred in alluding to the Hastings run, is a great evil which must be avoided, otherwise fighting control and general discipline will be seriously impaired. I am not prepared to accept the unqualified statement that pneumatic tyres are quite unsuitable where certainty of action is required. Pneumatic tyres are necessary, in my opinion, when the speed of 18 miles per hour is exceeded. Detachable wheels are now fitted practically to all cars, including those owned by the War Department, and these render tyre changing a very small matter. Before leaving the subject of motor cars I must express my doubt as to the ordinary motor car being most useful for scouting. Surely the motor bicycle is preferable. Mr. Clarkson has described several experiments with double-deck, self-propelled omnibuses, and in referring to these experiments he laid stress on the unsuitability of the undisciplined London 'bus driver for work on country roads. The great importance of having disciplined drivers for transport work is so frequently underestimated or overlooked, even by military men, that it is gratifying to hear emphasis on this point from outside sources. The lecturer in his enthusiasm for the double-deck omnibus goes so far as to regard that vehicle in some respects as being superior to the railway for the rapid transport of men and *matériel*, and he even talked of covering 200 miles without difficulty in 24 hours! 200 miles in 24 hours in a motor 'bus is rather a tall order. One can hardly conceive circumstances necessitating such a proceeding, and it is probable that any man who had to undertake such a journey would require some time afterwards to recoup himself before he could be of much value. From a Scotsman's point of view no doubt the satisfaction of travelling at less than a halfpenny per passenger mile as against the railway's penny a mile might counterbalance the discomfort of a long journey in a motor 'bus; but in a national emergency a saving of a halfpenny might really result in a very serious loss of efficiency. Mr. Clarkson evidently had the use of motors for transport of troops engaged in home defence only in his mind throughout the lecture, and the question of shipping motor 'buses for service abroad in a foreign country, and their suitability for employment abroad did not arise. But an important question with regard to their utility for home defence is the sufficiency of supply for the conveyance of a large body of troops to the coast. How many omnibuses now running does the lecturer consider could undertake without difficulty the programme of the Chelmsford-Folkestone journey which he has described? Again, how many of them would carry out the journey at a halfpenny per passenger mile—that is to say, about 7d. per ton mile? I am not quite clear what registration of motor cars is referred to; I hope that the technical reserve—the formation of which is now being considered—will

embrace all our requirements. We are receiving the assistance of the principal Automobile Clubs and Associations in this special line, and we earnestly hope that Mr. Clarkson will continue to help us with his valuable experience. This is not by any means the first time that Mr. Clarkson has actively interested himself in the efforts we are making in our progress towards the solution of this interesting problem. He has given us every assistance possible on two or three occasions lately, and we should be glad to think that we may look forward to continued assistance from him in the future.

T. Miller Maguire, M.A., LL.D. (Barrister-at-Law, Inner Temple):—I am very sorry indeed that there is a serious diminution of speakers this afternoon on a matter of such very great importance, whether considered from the point of view of the distinguished scientist who read the lecture, or the gallant Colonel who has just sat down. For my own part, being of a somewhat conservative tendency, I dislike motors with all my heart; I prefer any kind of vehicle whatever, even the old stage coach or Irish jaunting car; but I cannot help admitting that motor vehicles are with us, and hence we must make the best use of them. If we do not, other people probably will. Accordingly, I was foolish enough to invest some small proportion of my money on motors at their very start, not for any hope of gain for myself, but for military reasons. At the same time, I think motors were first brought to public attention, not by the War Office for military purposes, but by novelists. My own memory is that Mr. Wells, the novelist, aided and abetted by myself to some extent, was the first person who showed with striking imaginative foresight what a very leading part these machines were destined to play in war, even as other vehicles, like railway carriages, have played—indeed, railways are now regarded as indispensable, because if they have not revolutionised the principles of war or strategy, they have undoubtedly aided very materially indeed in the application of those principles. In the Franco-German War and in Manchuria their *rôle* was most important. That is now, I believe, Sir—and you are an engineer—one of the accepted maxims of the modern Art of War. Is this a dream—this description of the battalion of the Guards and its motor march to Hastings? You know Hogarth's pictures; well my only parallel is that artist's picture of the March to Finchley, 1746—an immortal caricature. I happened to write to the War Office about the former march. I went to the trouble of warning one of the officials of the War Office that it was nonsense, telling him that these large motor vehicles would be far better than the private motor cars which the lecturer ridicules; but he never answered my letter. At the beginning of the paper is a description of a march of the Guards. There is no such disorderly march in advance recorded since, but there have been several in retreat, *e.g.*, after Vittoria and after Wörth. The author says: "With a scratch lot of cars and undisciplined drivers, trouble is certain to arise." Trouble did arise. What was the experiment for? To transfer a battalion of the crack troops of the richest nation in the world from its capital to its own favourite seaside resort. Could any greater satire be written by the bitterest enemy of our race than the description given of that experiment by the learned and accurate lecturer? I do not suppose any battalion ever stretched out so long before: "The length of the column on route appears to have exceeded six miles, and some observers estimate the length at twenty miles at certain parts of the route." How far would the German Army, as at present constituted, stretch at the

same rate? How far would even the Aldershot Command stretch? I do not think there is much pleasure in continuing to read that part of the lecture. For my part, it seems to be an incident of which the Army Council should be thoroughly ashamed. There is another very important matter in the lecture which has not hitherto been sufficiently observed. The lecture has brought out very well indeed the necessity for estimating the differences in the roads, that every road is not the same. A number of my friends used to drive in Ireland as they would in England. I was overturned by one of them—thrown over a bridge into a river in consequence of his proceedings. Apparently a considerable number of people think that it is exactly the same thing to drive a car in London and to drive it on a country road. I am very glad the lecturer has pointed out that that is not the case. The "camber" of the road is a thing which we require some explanation about, as there are ladies and gentlemen here who probably do not exactly appreciate what the meaning of the word is. I was nearly killed through not knowing something about it, and it is really a very serious matter. In order to estimate the possible value of this new method of locomotion, skilfully used, just take Napoleon's operations when he was thinking of invading England in 1805, and failed. He had to transfer the splendid series of columns of corps which he had gathered by the sea across France, and if I am not greatly mistaken, it took him more than thirty days to get across to the Rhine, and then it took him from the 26th September to the 7th October to get to the Danube at Donauwerth. It might be interesting to know how quickly he could have effected his object with the machinery we have now—railroads and motor 'buses. A question is raised in the paper in connection with the motive power, as to whether steam or petrol is the best, and the author appears to favour steam. There was a very interesting lecture here about two years ago, which was delivered by a celebrated Scotch Judge and Volunteer, Colonel Macdonald, better known in Scotland as Lord Kingsburgh. It is a brilliant lecture. My friend, Major McNalty, of the Army Service Corps, made some remarks at its close, and if you will allow me, I should like to read an extract to you: "I myself am in command of the mechanical transport of the Army Service Corps, serving in all parts of the United Kingdom and outside the United Kingdom, and we have been developing on the lines of being independent as much as possible of fuel, except that of the country in which the vehicle is being worked." That will be found on page 430 of the JOURNAL of the Institution, April, 1907. Now, mark this. Major McNalty proceeds: "What Mr. Shrapnel Smith" (one of the speakers in that discussion) "has said as to steam vehicles using fuel which is produced in the country is very true; but there is a fuel also for internal-combustion engines which can be produced in every country—namely, alcohol." There is too much of it produced in Scotland apparently, according to the Chancellor of the Exchequer, and it is not unknown in Ireland. Major McNalty goes on: "This fuel is being tried in Germany and France by the Governments of those countries, and the heavy and light engines of the German Army have been using alcohol to a considerable extent for some time." I give no opinion on this point, but evidently there is a divergence of opinion between Major McNalty and the lecturer. The lecturer says that steam is sure to prevail, but Major McNalty said in 1907: "In fact the development of alcohol as a fuel is a matter of the future, to which we can look forward with a considerable amount of certainty." I should like the lecturer, for practical purposes, to give us his opinion as to whether there is anything in Major McNalty's

remarks. The value of the motor in strategy was splendidly set forth a few years ago, and perhaps I might be allowed to refer to it.

The CHAIRMAN:—I think perhaps you misunderstood the lecturer. You were talking about steam, but the steam the lecturer proposed to produce was the steam obtained by burning petroleum, and not an internal-combustion engine. Did you understand that?

Dr. MILLER MAGUIRE:—To tell you the truth, I speak *extempore*, as I never saw the lecture till I entered the room, and hence I had not very much time to enter into anything like an elaborate scientific study of the remarks. I merely wanted to know whether the lecturer thought there was anything in the remark of my friend Major McNalty, and perhaps the lecturer will tell me at the end of the discussion. Would you allow me now to read an example of the value of this motor transport from the strategical point of view?

The CHAIRMAN:—If it will not take more than a few minutes.

Dr. MILLER MAGUIRE:—I will not keep the meeting very long, at any rate. I will refer you to page 428 of the JOURNAL for April, 1907, where Major Murray Lawes says: "We have ascertained privately at different times, in spite of all we have been told at this Institution on many occasions, that large forces of troops could be landed on our shores, and that the only means of opposing those forces at various points on our coast are the means by which a large force of about 20,000 or 30,000 men could be moved almost momentarily"—an important point with regard to motors—"and placed near the spot where the invading force is likely to be landed." You cannot, of course, protect every spot around our coasts any more than you can protect every passage across a river. "For instance, there is on the East Coast, Sheringham, and the South Coast, Torquay, Shoreham, Whitstable, and all sorts of places further up North where large forces could be landed. Therefore, if we are to send a force of men to engage the enemy, that force must be placed at some place in the centre of England"—fortunately the centre and any other part of England is never very far away from the coast—"say Reading, Oxford, or some town in a position which is in communication with the spokes of the main roads which run out of London." My authority wants a large force of motors organised with skilful drivers, with fuel supply ready, everything mathematically and scientifically as accurate as possible—exactly the reverse of the Finchley and Hastings marches. He wishes you to provide interior organisation somewhere between Nottingham and Birmingham and Warwick and Rugby, and other localities where there are important railway junctions. He would have communications through Fishguard or Holyhead to Ireland; by York to Scotland. He would collect a large number of motor cars under the orders of the Chief of the Staff, and send a corps forthwith in less than a day to any point where invasion is possible. I do not doubt that invasion is possible, if it is not there is no necessity for the Territorial Force. I do not know whether you agree with this theory, but at any rate, I quote what was set down here in 1907, and I am mentioning it as a subject for discussion. If I mentioned mere truisms to which everybody would agree, nobody would discuss them at all, and debate would collapse—at any rate, I have the greatest pleasure in thanking the gallant, the accomplished and skilful lecturer and the gallant Colonel for the information they have given us.

Colonel PAUL:—I may say that the War Office was not responsible for the organisation of the Guards' trip to Hastings. It was suggested to them, and they merely took the offer which was made.

Dr. MILLER MAGUIRE:—I apologise.

Mr. T. CLARKSON, in reply, said:—With regard to the remarks of Colonel Paul, as to soldiers and civilians being carried on these cars, I quite appreciate what he said. One of the points I referred to in the paper was that cars which were designed to carry civilians might be quite unsuitable for carrying men who were fully equipped, and I noticed that was one of the difficulties experienced by men in getting into the private cars. I do not suggest for a moment the men should not be required to carry the full complement; they must be able to carry the full complement, and the cars must be able to take them as they are. I think it is a matter of arrangement as to whether the men should continue to have the various fitments attached to themselves. Supposing they were going 50 miles, it might be better for the men if they were allowed to stow some of the tackle under the seats. I am quite satisfied that thirty men is not too large a number, allowing for all this equipment. In one case we carried fifty and no difficulty was experienced; but I think fifty is too many. I think even forty is too many. Thirty-four is an ordinary standard load, and I am reducing it by four to provide more room in the interior. It is the interior where the crowding will be felt more particularly. You have there eight aside with the ordinary civilians, and I am reducing that two a side, which will give plenty of room. On the top, as the men are not sitting in two rows but on small garden seats, there is not the same objection to their being individually a little more bulky. It is said that a speed of 12 miles per hour is perhaps rather overstating the possibilities. My paper records the result of an actual trial over an exceptionally long distance, 186 miles, when the average running time worked out to 13·6 miles per hour. No attempt was made to rush—we took the road quite deliberately. I have no doubt a much better performance could be done if it were required. A great deal, of course, turns upon the discipline of the drivers. It is absolutely essential for the success of any motor transport service that the men should know the country in which they are likely to operate, and they should be in close touch and sympathy with the car, and that means that the car must be in constant service. It is not a bit of use getting a lot of motors which may be quite suited to the duty, and putting them on one side in a shed ready to be available at a moment's notice when required. Motors treated in that way would not appreciate but would deteriorate. They must be kept in condition by being constantly in service. Therefore it appears to me the solution is to have regular employment for the motors. We have here in London plenty of employment for public service cars, and they may be easily diverted from their usual employment if a need arises. I am glad Colonel Paul agrees with my remarks as to private cars and the serious inconvenience of separating the men from the officers. With regard to pneumatic tyres, I do not want to be misunderstood. What I meant to convey is that if there are a lot of cars acting in concert, up to fifty or a hundred, if you have to stop one car to change the tyres, it upsets the whole thing, and confusion must result. They must lose station. Where you want absolute reliability it is no use putting on a pneumatic tyre. I do not say that it takes very long to repair, because with detachable rims it is comparatively an easy matter; but you cannot conceive a whole train of

motors being hung up while a repair is being made to one car. With reference to speeds, I have run over 20 miles an hour on large motors with solid tyres, and with good springs it is really surprising what comfort there is. Where cars are acting individually or only a few together, especially when a high speed is required, I think the pneumatic tyre would be very useful. Colonel Paul touched also upon my comparison between the railway and the double-deck motor. One has, of course, to recognise that if the railway is employed to transport men to a certain point where their services are necessary, first of all the railway does not start from the barracks, and the men require a certain time to get to the station. When they are on board the train they may perhaps go at a higher speed than in the motor, but they are delivered at a point where they are not required, and they have therefore a certain distance to march. There are many points in this country over five miles from a station. My argument is, that where you can carry the men on the ordinary roads and not be restricted to the railroad for rapid movement, the net result is that you can get the men from the barracks to their destination very much quicker, and I think that is true for the distances over which men are likely to have to operate. I simply mentioned the long distance of 200 miles as being feasible, and I hope there will be an opportunity before very long of putting that to a practical test. If it is thought necessary at any time to be able to move men 200 miles within 24 hours, I am quite sure it can be done. With respect to the men not being so fit after riding on a motor as after riding in a train, there are present here gentlemen who have ridden long distances on these motors, and the general impression is that riding on these motors for a long distance really spoils a man for riding on anything else; the comfort, I think, leaves nothing to be desired. I have only had in mind the question of home defence; it never entered into my calculation to send these motors abroad. The problem I have kept before me is to be able to move men with the utmost rapidity for the purposes of home defence. The idea is to have in London a Motor Omnibus Service in a high state of efficiency, capable of moving men to just where they are wanted, whether it is 50 or 200 miles. I was asked how many cars there are in London at present which would be capable of running from Chelmsford to Folkestone and back in a day. I think at the present time the number of cars in London which could carry out such a programme could be counted on the fingers of both hands; but I do not think this will be the condition very long, and at all events it does not prove anything as to the impracticability of carrying out the scheme. As you are probably aware, the Commissioner of Police has for a considerable time given a great deal of attention to the improvement of the construction of motors for public service, and I am certain that it is his wish to have them brought to the highest state of efficiency. Although this has perhaps pressed heavily on some of the parties concerned, he has done a very excellent service to the public. When these motors satisfy Sir Edward Henry, one may rest assured that they will be good ones. He is now getting motors which may be depended upon to carry out any work which is likely to be entrusted to them by the War Office. Dr. Miller Maguire candidly confessed that he disliked motors of all kinds, but he recognises they are with us, and that we may as well see how we can employ them. We have all read Mr. Wells's books with interest. Wells is an old friend of mine; we were at school together. He was always a man of great imagination, and we want some people of imagination to lead us and show us the possibilities. With reference to the word "camber," that is generally understood to mean the amount of curvature upon the section

of the road. In London the roads are practically flat, whereas on country roads, for some reason I do not understand, county surveyors generally put a great deal too much camber, under the impression apparently that the road lasts longer. This, however, is not the case, because as a matter of fact putting more camber on the road simply means that the sides of the roads are so much on the slope that people will not ride there; they stick to the middle of the road, and the middle part gets worn. The whole width of the road is not used. I think ultimately it will be realised that it is far better to make the roads as flat as you can, and even to provide at certain parts where there are sharp curves a certain amount of banking to balance the centrifugal tendency. With respect to alcohol, there have been a great many experiments made in the use of alcohol, not so much for steam raising as for use in the internal-combustion engine. The results so far have certainly not been very encouraging or satisfactory. The German War Department conducted trials, and I believe gave great encouragement to the employment of alcohol for this purpose, and I may say that the British Society of Motor Manufacturers employed a distinguished chemist to investigate this question as to the possibility of using alcohol which might be produced by the agriculturists who may have been to some extent hit rather badly by motors. But, notwithstanding all this encouragement to the use of alcohol it has not come into general use. In the first place, its thermal efficiency is less than petrol, and there appears to be difficulties in the way of the production of organic acids in the cylinder which cause excessive corrosion. I can quite sympathise with Dr. Maguire and others who prefer to see alcohol consumed in another way. I do not think that there is any practicability in having a central depôt for motors in the heart of the country. My idea is that London is sufficiently near to the heart of the country to form that central depôt, because as I mentioned just now, it is essential to any motor transport scheme to have a centre where they can be commercially employed at all times when they are not engaged in military duty. In Germany, I believe, the War Department has provided the motors they are likely to require for military purposes, and they have trained military drivers, and when the cars are not required for military duty they are hired by commercial firms to use for their ordinary business purposes. The Government has the use of them at any time, and they can cancel the hiring whenever the cars are required. It is a different thing, of course, here. The Government is not disposed to provide the motors, and it is therefore left to private enterprise to do so. If the Government wishes to use them, arrangements can be made; but I think it would be recognised that if the cars are provided by private enterprise, arrangements for the special employment of these motors, withdrawing them from their usual duty, must be arrangements that are not prejudicial to the people who provide the cars. Colonel Paul reminded us that the War Office was in no way responsible for the Hastings run, and that of course is quite true. I do not think it is very likely there will be a repetition of that experiment. In conclusion, I beg to thank you for your very kind reception of my little paper. I very much appreciated Colonel Paul's remarks with regard to anything I have been able to do, and I can assure you it will give me very great pleasure at any time to do all I can in the future.

The CHAIRMAN (Major-General Sir T. Fraser):—The question Mr. Clarkson has spoken upon is a very important one, particularly in connection with this country, which I think, from my experience in four Continents, is better provided with roads of all kinds, large and small, than any other I have seen. Consequently, for home defence it becomes an

urgent question how to utilise them. Our roads, however, are not all good. We have first-class roads that have come more or less by accident or chance, or which have been left us by the Romans; but these roads have not been provided to meet our modern military point of view, as have the great chaussées in France and the roads in Germany and Italy. Therefore, when we think of carrying great numbers of men by motor carriages, we have to recollect that the number of roads suitable for heavy weights, that are really fit for heavy, long motor cars, owing to freedom from turnings with sharp curves, is relatively small. The statical stability trials are interesting; but with masses in motion the question is dynamical. At the same time, I think you will all agree with the lecturer that what we have to do in time of war is to take what we can get. My own experience in several wars has been that you are thankful to get anything, and make the best use of it you can. Colonel Paul is right, we cannot break up military units however small; they must go as units and with their officers. Those, however, are military questions that will solve themselves. The general question that Mr. Clarkson has so happily raised this afternoon is this. We have in London alone, and in some other centres, a very large number of efficient vehicles for certain roads that will be a great improvement on horse traffic to carry men long distances from place to place. My own impression is that in a country where we are running short of horses for military purposes very rapidly indeed, motor vehicles are of the greatest importance, not only for troop carrying, but for supply. We have, it is true, the horse resources of Canada and Australia behind us; but everybody knows the difficulty we had in keeping South Africa going in the last war, with access to all the world. Therefore, we ought to make every possible use we can of mechanical transport to meet the needs of war, particularly at home where we know what we can get and the class of roads we have to deal with. I am convinced that even the bicycle will become a very important military factor indeed. I do not think, for reasons I have published, we shall be able to mount all our Yeomanry and the Regular Army with suitable horses without very great and protracted efforts, even for this country alone; and for that reason my impression is this: apart from what we can carry on wheels, infantry mounted upon bicycles will probably be the best means of rapidly concentrating armed force at the points of danger along the coast, wherever they may be. There is an immense number of small roads and lanes in this country fit only for very light traffic, but valuable in war, and bicycles can go wherever a pair of wheels can, and much further. Areas not penetrated by such roads are very small, and leave little for infantry to do on foot. A good horse costs as much as 8 or 10 bicycles, or as many rifles. The bicycle is untireable, and neither eats nor drinks, and takes up much less road space than a horse, and a man moves much faster on one, and can go daily twice or thrice as far as a horse-man can, while no horsed guards have to be detached from the fighting line. Along the South Coast of England the great roads radiate southward from London to a great number of coast towns, and favour resistance to invasion. From London the great roads northwards run parallel to the East Coast, which is approached by subsidiary roads from them. That difference is a very important strategic war factor, and has to be borne in mind. I am sure you all join with me in giving our very hearty thanks to Mr. Clarkson for raising the general point: that there is a great source of motor energy available in this country in commercial use that we may profitably lay hands on in war, provided we have organised it and experimented with it in peace.

RASPLATA.

("THE RECKONING.")

By Commander VLADIMIR SEMENOFF, Imperial Russian Navy.

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(Continued from March JOURNAL, p. 354.)

CHAPTER II.

FIRST DEFECTS—DELAY AT FAKKJEBERG—TRIALS WITH A MINE-SWEEPING DETACHMENT—THE PASSAGE THROUGH THE "BELT"—OUR WIRELESS TELEGRAPHY—DELAY AT THE SKAW—THE EPISODE WITH THE "KAMTCHATKA"—THE OMEN—"THE HULL AFFAIR"—THE PASSAGE THROUGH THE CHANNEL AND THE "BAY"—ONE HUNDRED ORDERS AND FOUR HUNDRED CIRCULARS—"SQUADRON" OR "ARMADA."

ON 16th October occurred our first mishap, which was reported to us by "wireless." The destroyer *Bystry* rammed the *Ossliabia* through being badly handled when closing her to convey a message; she bent her stem, as well as the stem torpedo-tube, and had a hole knocked in her side, above water, 4½ inches in diameter. The constructor on the staff gave it as his opinion that the damage might be made good next time we were at anchor.

On 17th October, at 7.15 a.m., the first division of battleships anchored close to Fakkjeberg light, at the entrance of the Belt, and towards nine o'clock, with the arrival of the last detachment, which was a little belated, the whole squadron had assembled. Coaling was started at once, but soon after noon it came on to blow hard from the south and it had to be discontinued.

The idea of organising a mine-sweeping flotilla for the squadron met with the Admiral's full approval, and its realisation *at some future time* was recognised as being urgently necessary, whilst almost insuperable obstacles (it was said) stood in the way of an *immediate* execution of the plan; in the first place there were no sweeps of the Port Arthur pattern in the squadron; secondly, the destroyers had never practised

anything of the sort, consequently nothing but mishaps were to be expected from their first attempt in that line, especially without adequate preparation, and, moreover, when trying it at once on so large a scale.

As regarded the first objection, I pointed out that at Port Arthur the sweeps had never been made in the dockyard, but on board the ships of the squadron with our own material and our men. Moreover, the reports as to the carrying away or the total loss of sweeps generally only came in towards evening, and as they had to be replaced by the morning, the new ones had to be made during the night. As regarded the second objection, I could not admit its validity. I knew very well what difficulties we had had at Port Arthur, how many sweeps were carried away, how many propellers got foul, until the officers commanding these vessels had acquired the necessary practice. The thing had to be learnt first, for without practice no satisfactory results could be expected from our novices, otherwise the business might end, not in small mishaps, but in serious accidents. The scheme was evidently on the point of being pigeon-holed, when I was suddenly supported in my efforts by the second torpedo officer on the staff (there were two), who, from want of room on board the flagship, had been quartered on board the *Borodino*. On his report the Admiral gave orders that in any case an attempt was to be made at once.

Although the safety of the squadron might not at once be ensured thereby, it was pointed out that there was an advantage in having a practical demonstration of the business. It was all the more worth while to make the trial as the strong winds which were still blowing prevented coaling, and consequently our departure had been postponed to 19th October, which gave ample time for preparing a suitable sweep. As sweeping vessels, the icebreaker *Yermak* and the tug *Roland* were told off. Pushkin[1] already had said "that the fiery steed and the trembling doe should not be yoked together to the cart." This comparison, though, is still too weak. One should say: "An elephant and a pony." However, there was no choice, and we had to take what there was.

For the purpose of making the sweep, a special circular was issued, in which it was laid down precisely what stores each ship was to send to the *Yermak* by the morning of 18th October. The repair ship *Kamtchatka* was ordered by "wireless" to make at once fifty small grapnels,[2] which formed an important part of the Port Arthur sweep.

I endeavoured to obtain a hearing for my view, that although such a collection of component parts showed good organisation, and no doubt was fully justified, it might perhaps be more expedient *if the flagship* were to supply all the stores required, and then to let the other ships replace these.

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[1] [The Russian poet.]

[2] Small anchors with 4 arms. In this case they were not more than 8 inches long.

However, this was purely a question of staff-routine, and I only got snubbed for my pains.

On 18th October the two staff torpedoists and I went on board the *Yermak*. My presentiment came true. Many of the ships (and for very good reasons) had either not supplied what was required of them at all, or had not been able to do so. This entailed signalling and writing. Chits were sent backwards and forwards. Amongst others the *Kamtchatka* had made no grapnels. Asked "Why not?" she replied: "As no written orders were received to that effect, the work was not taken in hand."

Is this not truly characteristic?—It reminded me of the state of affairs in the dockyard at Port Arthur during the first weeks of the war. There also one could not get anything done without the "necessary formalities," and an old friend of mine, *apropos* of this, once raised his hands solemnly towards heaven, saying: "A bit of paper like this, my dear fellow, is something sacred!"

However, we managed somehow, and after we had worked well into the night, the sweep was ready—not exactly the same as at Port Arthur, but somewhat after that pattern. In consideration of the fact that all hands in the *Yermak* had become sufficiently familiar with this manœuvre after all my explanations, whilst the master and crew of the tug *Roland*, which had only just been chartered, had not the faintest conception of what mine-sweeping meant, it was decided that I was to go to her with one of the torpedoists, whilst the other remained in the *Yermak*.

As soon as it was light the two vessels steamed up to the entrance of the Belt and began paying out the sweep. Contrary to my apprehensions this was carried out without the slightest hitch. We neither fouled anything, nor got kinks in. By 7 a.m., when the squadron began to weigh, we were all ready to move ahead in front of it. And then. . . . It must be perfectly obvious to everyone that in an operation such as this, a vessel towing a sweep will be manageable in direct proportion to its size and the power of its engines. It follows that in a sweeping couple the bigger ship must regulate its movements by the smaller. On board the *Yermak* this had apparently not been thought of, for she turned short to the new course and went ahead, without giving time to the *Roland* to take up her appointed station. The little vessel, which was now practically tied up by the stern by the sweep, became quite unmanageable, and made a despairing signal: "Stop your engines. What are you doing?" It must be owned, in justification of the captain of the *Yermak*, that he recognised his mistake at once. He not only stopped, but went astern. But it was too late. To stop the *Yermak's* movements when she had once gathered headway could not be done easily or quickly. The sweep taughtened out and—parted!

Meanwhile the squadron was coming on. When the *Yermak* reported by signal what had happened, the Admiral

made back: "The passage is to be considered as having been swept," and continued on his course. The *Yermak*, which had to accompany the squadron as a powerful tug, made to us by wireless: "Haul in the sweep and follow," and then joined the battleships. Hauling in the sweep took an hour and a half. Then we tried to overtake the squadron.

This failure made me very sad. The thing in itself was a trifle. One need only remember how many sweeps we carried away at Port Arthur until we got it into working order. When I was asked: "Whose fault was it?" I could hardly name anyone. It was simply want of experience, nothing more. But this first utter failure—what a trump card this might prove in the hands of the defenders of the "Transund Scheme"!

At 10 a.m., just as we were joining up with the squadron (we had cut off a corner), we received orders by wireless: "Go to the *Orel*." About noon we came up to this battleship, which was at anchor right in the centre of the Belt.

When we were close I hailed the captain by megaphone: "This vessel is placed at your disposal. Request instructions."

"I require no assistance. I shall get clear with my own means. Anchor near me."

"Very good, sir."

As it turned out, we were to be of use to him, but in a very unexpected manner.

On board the *Roland* a somewhat feeble Marconi apparatus had been installed, and no sooner had we anchored than this apparatus begun to register messages which were addressed to the *Orel*, or, to be more accurate, the *Orel* was being called up by the *Suvoroff*, but did not reply.

We semaphored to her: "*Suvoroff* is calling you up." Our apparatus then at once passed on the *Orel's* answer, and then received the *Suvoroff's* further question: "How soon will you be ready?"—No reply from the *Orel*. After the flagship had repeated her question twice, without getting anything out of the *Orel*, we passed it on to the latter by semaphore. She at once replied: "In about two hours."

Further conversations took place in this original manner. The *Roland* received the *Suvoroff's* messages, and passed them to the *Orel*, which for some reason or other was unable to take them in, but was able to make the replies direct.

As I am not a specialist in this branch of the service, I asked the staff torpedoist, who had remained behind with me on board the *Roland*, for an explanation.

"Evidently the *Orel's* receiver is not in order," he said.

"I thought so too, long ago, but tell me how it is that one cannot find out the error and rectify it. The *Orel* carries two torpedo lieutenants, both wireless specialists, and yet a tug like this has to come to their assistance, with a weak little apparatus, which has had no expert supervision for some years, and which yet works so well."

"It is a Marconi apparatus. They are much more simple."

"Then what system have we got in the squadron?"

"We carry apparatus made after the patents of the German firm Slaby-Arco."

"I suppose that means that this is the best system in the market? Has it been adopted universally?"

"No . . . not as yet . . . nowhere, in fact, but the firm made such advantageous offers, it guaranteed such extraordinary ranges, such as no one had yet succeeded in obtaining, that . . . ."

"And so the Russian battle fleet, the last card in our game, was placed at the disposal of Herr Slaby-Arco for experimental purposes, for the acquisition of more extended experience? Suppose all this is merely an advertisement?"

"I have had nothing to do with it, absolutely nothing," the torpedo officer hastened to assure me (apparently he thought I intended "going for" him). "I protested as much as I could . . . I stood up for the Marconi system, which has been tested for years . . . but, you will admit yourself, what more could I do? . . . The Technical Committee considered it the best. The Central Administration made the contract. There was nothing more to be done. Even the Admiral could not have done anything to prevent it, if he had tried! . . . Might as well run your head against a brick wall!"

"Very well, and now tell me what your own opinion is of all this. There are none but Germans around, who don't understand what we say—tell me frankly what do you think of this system?"

"It is hard to say how it will turn out. . . . Perhaps we shall yet get it to work. On board several of the ships experts from the firm have been embarked. Possibly they may manage to get the instruments to take in as well as transmit messages. Meanwhile, to be quite candid, it is not worth much . . ."

At 2 p.m. the *Orel* weighed and steamed after the squadron. We followed astern. From the wireless messages which passed between her and the flagship, we gathered that her steering engine had broken down, and that apparently the damage had not been thoroughly repaired. The ship had considerable difficulty in keeping her course, and was yawing about a good deal. We steamed like this all night. At eight in the morning we sighted ahead the *Aurora* and the storeship *Meteor*, which had dropped astern of the squadron. About 11 a.m. on 20th October, we four ships, almost simultaneously, reached the squadron's anchorage, south-west of the Skaw.

On my return to the *Suvoroff*, on coming over the side, I ran into the arms of an old messmate and friend of mine, who had left the service long ago, and—as it was called afloat—had "devoted himself to foreign branches of industry." I was in a hurry to make my report. He wanted to get back

to his vessel quickly. Still we just stopped a moment to exchange a word of greeting.

"How do *you* come to be here?"

"I am in command of a destroyer."

"But what the devil brings you here? Did they send for you? What are you doing here?"

"And what do *you* want to do here? For the second time, too! Didn't you have enough of it at Port Arthur?"

"With me it is quite another thing. I am on the active list."

"No, my friend. We are all tied by the same bond: I wore the uniform so many years, I was shown in the Navy List so long as a naval officer—no, I must meet my engagements. We now have to pay the reckoning!"

"Why not? But why this tragic air?"

"I've got no time now. Some other time we'll talk about it! . . . . Just look around and then you'll understand. . . ." These disjointed sentences were pronounced as he was rushing down the ladder and jumping into the boat, which had just come alongside. From there he once more shouted back: "Remember my words—*The reckoning! The reckoning!*"

From the Skaw we had to send the destroyer *Prosorlivy* back to Libau, as her condenser tubes leaked so badly that the defect could no longer be made good on board; also the *Yermak* which had something wrong with her tubes. A bad beginning!

So far as I could learn, it was intended to remain here two days for coaling in anticipation of the long run before us. Where did this run take us? What route would be chosen for the squadron? All this remained hidden from me.

Towards me the staff maintained absolute silence; they looked upon me as an "outsider."[1] I confess I did not complain in the least; thank God, they had learnt to keep secrets! Meanwhile a certain amount of information leaked out to the mess by some inexplicable means. For instance, about midday, it became known that our agents had reported that fishermen had seen four torpedo-boats of unknown nationality, cruising about on the further side of the Skaw; a balloon had also been sighted which had passed over the squadron at anchor from S.W. to N.E.; the master of the supply ship *Bakan*, which had just returned from the Polar Sea, had reported to the Admiral that some suspicious-looking vessels were hiding in the bays on the coasts of Norway. Possibly these reports were inaccurate. As I was not initiated into the secrets of the staff, I had, in making my notes, to be satisfied with what I picked up in the mess, and also in part with what the flag captain, an old messmate of mine from the Pacific Squadron, told me.

[1] [English in the original text.]

In any case, something clearly was up, for the squadron sailed as early as 20th October, without completing the coaling.

At 3 p.m. the destroyers and the fleet auxiliaries weighed, the former having been attached to the latter. After these, the first division of cruisers (Rear-Admiral Enquist); then, at 5 p.m., the second cruiser division (Captain Schein); about 7 p.m. the second division of battleships (Rear-Admiral Fölkersam); and at 8.30 the *Suvoroff*, *Alexander III.*, *Borodino*, *Orel*, and the fleet auxiliary *Anadyr*. It was a moonlight night, clear and calm.

Towards morning, on 21st October, with a light S.W. breeze, a fog came on, which was so thick that we could hardly make out the *Alexander*, only 2 cables astern. Towards noon the fog lifted.

The navigator told me that we were going through the English Channel. I could not help endorsing this bold decision of the Admiral's. If the reports of our agents were true, if, that is, the Japanese really had prepared a trap for the squadron immediately on its exit from the Baltic, then with their character which mistrusted everybody, they could hardly count upon keeping their plans secret. They were therefore bound to assume that we should choose, not the usual much frequented route, but the one round the north of Great Britain, and that we should coal at the Faroe Islands—a route on which ships are seldom met with, where it is possible carefully to watch any vessel sighted, to make out the identity of any suspicious vessel, and either to keep out of her way or request her to keep away. It was not for nothing that all these alarming reports came from Norway, or from the north-eastern coast of England.

The day passed quietly.

At 9 p.m. the repair ship *Kamtchatka*, which as we afterwards found out, had dropped astern of Admiral Enquist's division, owing to machinery defects, and was steaming along by herself, reported by wireless that she was being attacked by torpedo-boats. The news was so improbable that, at the outset, it only met with doubt.

If, indeed, the Japanese were already in our neighbourhood, they would have to be regular *clairvoyants* to identify the solitary *Kamtchatka* as belonging to the Russian Fleet. Her appearance was absolutely that of a merchant steamer—and a very misshapen one at that. And finally, supposing them to have had this happy inspiration, if they really had succeeded in unearthing this treasure, with what object were they now throwing themselves on her? Could the destruction of the *Kamtchatka* possibly delay the advance of the squadron? It was all absolute rubbish. Many of us expressed the fear that she might accidentally have come upon a division of German torpedo-boats. And supposing this had happened and she had fired on them?—then an "incident" was there ready made, and a very awkward "incident" into the bargain.

The wireless messages which now followed were still more strange, and aroused the suspicions of a deliberate mystification.

The *Kamtchatka* reported that some of the torpedo-boats had come up within a few cables' length of her, that she had turned away from them, had fired on them, and had got away from them by frequently altering course. . . . And by now it was eleven o'clock! . . . . It was perfectly clear to everyone that the *Kamtchatka*, with her defective machinery (without this defect she could not do more than 14 knots), with her armament of a few 12-pounders, could not have stood the attack of an entire division of torpedo-boats all this time. If the attack had taken place, as reported, she would long ago have been on the bottom of the North Sea! These suspicions were nearly confirmed, when at 11 p.m. a wireless message was taken in, in which the *Kamtchatka* requested the *Suvoroff* to give her position (by latitude and longitude), and then asked for "the position of the squadron to be indicated by searchlight."

"Somebody is making a fool of us," was the verdict amongst the officers. "Who is it who wants to know our position?"

I suggested, so as to make certain who the author of the message was, to request him to give us the Christian and surnames as well as the birthday of the chief engineer of the *Kamtchatka*. No "practical joker" could possess these data.

My proposal was not accepted.

The Admiral ordered the following reply to be sent: "If you have escaped the danger, steer west. Indicate your position, then the further course will be given you."

Upon this all wireless messages ceased.

This was still more suspicious.

Fresh S.W. breeze, force three to four, a good deal of sea; spray coming over every now and then; wet overhead, too, partly rain, partly sleet; the cold penetrated to one's bones. . . . I had nothing to do, and a happy thought suddenly occurred to me: Why stand about here for nothing? The happy thought dated from Port Arthur; when on guard out in the roadstead and one's watch was over, one called the captain, who was sleeping the sleep of the just, handed over the ship, and turned in, with the firm determination not to budge, unless there was an alarm—provided one had not been blown up in the meantime!

Many people laugh at an omen, but I believe in them.

I possessed a photograph of Admiral Makaroff, which he had given me just before my departure for the Far East. Naturally I had no opportunity of getting it framed either on my journey or at Port Arthur, but I always carried it about with me, like something sacred, and often read the simple words, going straight to one's heart, which were written on the back of the portrait—almost like a legacy, like the last will of my dear master—I venture to say—friend, who had come to such an untimely end.

Of course this photograph was also in my small cabin on board the *Suvoroff*, standing on the writing-table, and leaning against the bulkhead. The edges of the photograph had a narrow strip of red paper (the photographer's taste) pasted around, and . . . when I happened to look down, I saw that from a little stream of water which was running down the bulkhead (there must have been a leak somewhere) a few drops had separated, and were falling straight on the centre of the upper edge of the photograph. These drops became stained with red from the paper edging, and in running down on to the table formed a narrow red streak across the Admiral's face and breast. "That is a bad omen!" I said to myself unconsciously, and took up the picture to see whether there was any hope of making good the damage. No, the red colour had already eaten into the surface and begun to dry. . . . That boded ill.

All the same I slept soundly.

I was awakened, as it seemed to me, by the sound of the bugle "action."

"Am I awake or asleep?" was my first thought.

The tramping of the men's feet, who were running up the ladders, the rattle of the ammunition carriers in the hoists, dispelled any doubts instantly . . . and now the first gun had been fired!

I rushed up to the after-bridge and nearly knocked down Lieutenant B——, the junior torpedo officer, who was superintending the after searchlights, and Dr. N——, who had come up, as he loved anything in the way of strong excitement.

"What's the meaning of this? What are they firing at?"

"Torpedo boats! A torpedo attack!" they both shouted. "There, there!"

As I had only just left my cabin with its bright lights, I had not yet got accustomed to the darkness and consequently saw nothing.

The searchlights were throwing their beams to starboard and ahead. The whole of the starboard guns were keeping up a heavy fire. There was no confusion. On the contrary. . . . Now and then I heard the gongs of the range and order transmitters. They evidently knew their business. This was very different from the panic which I had seen on 13th April, when the ammunition was simply pumped overboard.

I now ran to the fore-bridge, where the Admiral, captain, and staff were sure to be. As I passed the wireless office I looked at the clock: 12.25. I made a note of it.

From the fore-bridge the following picture presented itself to my eyes: To starboard of us and ahead I saw, several miles off, a number of lights, amongst which from time to time signals flashed out. Some one (I don't remember to whom I addressed myself) explained to me that this was Admiral Fölkersam's division. In addition to this I saw in the beams of the searchlights, on the starboard bow, but much nearer, only

a few cables off, a small steamer, with one mast and one funnel, which had evidently crossed over ahead of us from port to starboard, and was now slowly moving away to starboard. A second vessel, which looked like the other one, was steering on an opposite course to her, and was heading straight for the *Alexander* [No. 2 in the line], as if with the intention of ramming her on the starboard side forward; that battleship was pouring a hail of projectiles over her.[1] The steamer sank before my eyes. A third one, of the same type, crossed our bows slowly, also from port to starboard. The gun-layer of the port 6-pounder mounted on the fore upper bridge, fired several rounds at her as soon as she had been sighted, but the Admiral personally seized him by the shoulder with his iron hand, and shouted furiously: "How dare you? and without orders! Don't you see —— fishermen!"

Suddenly away to port some searchlights flashed out, and lit us up with their rays; no one had been firing in that direction, and consequently these came out of an inky darkness.

One's first movement on such an occasion is to shade one's eyes with the hand, as one can positively see nothing. Without orders of any kind, without any word of command, a fiery belt was now formed around our port side. The battleships opened a furious fire on the searchlights—quite at random, as it was impossible to determine the distance. "The real attack is from there!" I heard someone shouting. Were the other side replying? I cannot say for certain, although I thought that my practised ear was able to detect, through the roar of our own guns, the whistle of projectiles fired at us. (This noise is very distinct from that of a shell travelling away from one.)

Almost simultaneously signals flashed out above the searchlights, which were lighting us up—signals, moreover, made by the Tabulevitch system, which, as was known, are only in use in the Russian Navy. "They are our ships! *Donskoi* and *Aurora*! They are making the challenge!" I cried.[2]

"Cease fire! Switch off searchlights! One beam up!" the Admiral instantly called out, with a voice which could be heard above all the noise and din.

The bugles sounded; the searchlights were switched off . . . only one, the foremost, turned its milky-white beam towards the sky; this was the prearranged signal to the whole squadron: "Cease fire." Of course, quiet was not restored at once. Even after the signal a shot was fired here and there.

[1] It turned out afterwards that this steamer had already been hit and had her steering-gear damaged, in consequence of which she was involuntarily heading straight for the *Alexander*, with the apparent intention of ramming her.

[2] It was indeed the division commanded by Admiral Enquist, which should have been six hours steaming ahead of us, and which now appeared abreast of us. Moreover, its ships were steaming with all lights out.

Probably the fire did not last altogether more than ten or twelve minutes, for when I went below again (I had forgotten to bring my watch when I ran up) I noted: "1.10 a.m., 22nd October."

This is all that I, as an impartial eye-witness, can tell of the "Hull Affair," which has caused so much excitement all the world over.

Amongst the officers who had assembled in the mess and eagerly discussed the incident, three different views prevailed. There were some who declared that they had seen with their own eyes torpedo-boats, rigged up like steam trawlers, which had attacked the squadron: one of these, they said, had been badly hit, another had been sunk. Amongst these was Lieutenant W——, a reliable officer, who had already "smelt powder" in the China campaign. The most excited of all these was the ship's surgeon, Dr. N——, who specially pointed out that not being in a position to give any orders, or to direct anything, he had been able to observe very carefully through his binoculars what went on. He said that it must surely be admitted that he, who had been at sea so long, who knew the navy thoroughly, would be able to distinguish between a steam trawler and so characteristic a type of vessel as a torpedo-boat.[1] . . . Others were of opinion that there may have been torpedo-boats, but that, having been discovered prematurely, they had retired, and that the steam trawlers had been fired at in their stead. The third party, finally, feared that the whole business was nothing but a fatal misunderstanding.

If I am to adhere rigidly to the notes in my diary, I must confess that, at the time, I inclined towards the latter assumption. I myself saw *no* torpedo-boat, and from my experience at Port Arthur, I remember well many a fanciful report of night engagements, published both on our side and by the Japanese. My views underwent a change later on, in consequence of facts which came to my knowledge subsequently, but that I will deal with later. At the time I assumed that we had got ourselves into a bad mess. One man held this view, another that.

Towards 2 a.m. the *Aurora* reported by wireless that she had four shot holes above water caused by 12 and 6-pounder shells. Wounded were:—the priest, seriously (he had lost his hand), and a petty officer, slightly.

"That is not bad by way of a beginning," the gunnery lieutenant of the *Suvoroff* said, adjusting his *pince-nez* nervously.

From 4 a.m. on we again had a light fog. It was calm, and the air became warmer. At 7 a.m. the fog lifted, but a drizzle came on. Between 5 and 6 we were constantly altering course, as we had to wind our way through a perfect labyrinth of fishing-craft. The night of 22nd-23rd October was calm,

[1] His report is probably amongst the records of the International Commission.

with a clear sky and full moon, and at the same time warm—a very rare combination at this time of the year.

At 3 a.m. we passed the Galloper lightship and entered the English Channel.

In the dawn of an uninviting morning we sighted to starboard the chalk cliffs of the coast near Dover.

About 11 a.m. (on 23rd October) we sighted Admiral Fölkersam's division on the starboard quarter. How was that? They ought to have been two and a half hours steaming ahead of us!

When passing Cherbourg at 9 p.m., where we expected our three destroyers and the supply ship *Korea* to be lying, we called these up by wireless. They replied that they had arrived all well, that the local authorities did not restrict the length of their stay, and that they had therefore arranged to take in supplies of all kinds, over and above the normal stowage.

By the evening of 24th October we were at the mouth of the Channel, and about to enter the Bay of Biscay (in the autumn a very disagreeable locality). The sky was of a whity-blue colour, the horizon hazy. The coast was not in sight, though it should have been. We had not been able to fix our noon position by sights. We passed Ushant apparently 5 miles off, but without sighting it in the haze. We shaped course for Brest. At 1 p.m. a fog came on, white as milk.

To enter Brest roads in a fog was impossible. On the other hand, an October fog in these parts might last until the next gale? The Admiral therefore decided, so as to lose no time, to take his division to Vigo, however desirable it would have been to fill up with coal now. He looked upon the delay of not only a day, but of every hour, as an irreparable loss. We therefore shaped course for Finisterre.

All these considerations I repeat here in the words of the flag-captain, who did not think it necessary to keep them a secret. In truth, on reaching Vigo, our arrival there would be instantly communicated to the whole of Europe, therefore what sense would there be in concealing our destination from the ship's company out at sea? To whom were they to impart this secret? In such circumstances it is obviously a mere "office secret," an opportunity for bringing it home to the "common herd" that they must not meddle with the concerns of "authority." The Commander-in-Chief gives the order, the staff issue the necessary detailed directions, and all the rest simply carry out what had been ordered. . . . A pernicious system, of which the late Admiral Makaroff had been a determined enemy. He was of the opinion that a sub-lieutenant, acting intelligently and sensibly, was more useful to the state than a flag-officer who was carrying out to the letter an order which he did not clearly understand.

Towards evening the fog lifted. The night of 24th-25th October and the whole of the following day were quite calm.

These days of quiet, undisturbed steaming were not time wasted for me.

Deprived of the possibility of penetrating the secrets of the staff, of studying the route, the plan of operations, the tasks which would be before the squadron in the event of it happily reaching the Yellow Sea and the Sea of Japan, I turned with all the more zeal towards making myself familiar with the squadron itself, by means of documents and thorough questioning of the officers—of course only my old friends. As for documents, there were the written orders of the Commander-in-Chief, and the circulars issued by the staff. Between the beginning of May and the departure from Libau there had been issued, of the former over 100, of the latter over 400. Included in these there were voluminous instructions and rules for the various branches of naval warfare. Besides these there was a whole sheaf of "very secret" plans and instructions, access to which I had some difficulty in obtaining.

This was a very praiseworthy piece of work, which would have deserved the prize for "diligence," or perhaps for "science," if there had not been in it pearls such as the "plan for organising the service of clearing a channel through a minefield," or "organisation of the watch, for lookout and repelling of torpedo attack on board ships at anchor in an unprotected roadstead."

As I read some of these "Rules and Regulations," I was several times on the point of losing all self-control and of running to their authors and exclaiming: "What are you doing? Do consider for a moment! Do you really imagine that your experiments in the ports of Cronstadt and Reval, or in the still waters of Transund Roads, are more reliable than the experiences which we gained at the cost of blood in fighting the enemy?" However, I pulled myself together; I only entered these queries in my diary; at some suitable opportunity they shall reappear. I had already learnt to my cost what a too energetic attitude led up to, in existing circumstances.

Otherwise—I repeat it again—the work was thoroughly praiseworthy, and, with certain improvements, it would have been of value as a handbook to the *personnel* of a *thoroughly trained squadron.*

The only question now—and a very essential question—was: could one apply this term to the collection of ships with which I was now on my way to the Far East?

From the dates of the orders and circulars, I saw that the squadron left Cronstadt for the first time on 25th August, and that it arrived at Björkö the next day. Here it remained two days, and carried out in great haste the various mining exercises. It then proceeded to Reval, where apparently some target practice took place, under weigh against a fixed target. By 31st August it was back at Cronstadt for the completion of the dockyard work and the preparations generally for its long cruise. From these papers it also appeared that telescopic sights (which have been in use in foreign fleets, including, of course, the Japanese, for many years) were only supplied to our guns at the end of July! On 11th September the squadron again left Cronstadt and went to Reval—for a further stay, as the work on

board was by no means completed. During the night of 16th September night firing took place for the first time—at anchor and at fixed targets. On 19th and 20th September torpedoes were fired. On 22nd and 23rd September the squadron went to sea, executed some of the simplest evolutions, and carried out further target practice, this time against towing targets. From the middle to the end of September, when it sailed from Libau, the squadron drilled with feverish activity. . . . But two weeks. Is that much? A "squadron" can only be considered fit after *years* of training at sea.

The deeper I plunged into these documents, the more I understood the reserve, the disinclination to discuss the theme, which the officers showed every time the conversation came round to the fighting value of the Second Squadron.

The picture was made still more complete by the various confidential talks I had with my friends, and again and again I recalled my old messmate's parting words, shouted up out of the boat: "The reckoning!"

"What is one to do?" I thought. "The reckoning! Very well, then let us meet it; but it is just as well that one should know it, instead of pottering about in the dark"—and I continued my investigations.

The crews of the squadron consisted as to one-half of recruits, who had merely been put through some squad and rifle drills, and received the most elementary general instructions ("What is an able seaman? What is the flag? etc., etc."), but who had never been to sea; then there were the reservists.

The gunnery lieutenant of the *Suvoroff*, who possessed a pretty sharp tongue, defined the situation as follows:—

"One lot have to be taught everything, because they know nothing, the other lot because they have forgotten everything; but if these do remember anything, then it is obsolete. Just think of your service as navigator: the time required to teach a good, willing peasant lad how to look through a telescope. What does he see the first time, no matter how anxious he is to carry out the instructions received? Of course, I don't want to say anything against the telescopic sights which long ago came into use in foreign navies. It is a devilish advantage if one can make out the enemy at 75 cables [15,000 yards] as clearly as at 10 [2,000 yards]. In the same way a typewritten paper is preferable to one written by hand; still, if you have a good clerk, who can write neatly and quickly, and being in a hurry for the fair copy of some long paper, you put him in front of a typewriter for the first time in his life, what would be the result?—A mess. I fear it is the same thing here," he ended, quoting the words of a well-known chansonette.

"Oh, well, I know you. You always like to exaggerate a bit, to lay it on thick, in fact. The chances are that, in reality, you have already trained your boys so well that for them a telescopic sight is a matter of pure joy."

"Don't you believe it," he replied in a very serious tone of voice, nervously shifting his *pince-nez*. "When could I have done this? Paper work—receptions; receptions—paper work. . . . Always at anchor. Only on very rare occasions a few hours' steaming. I *am* training them. Of course I'm training them. But aiming drill without firing—that's no use. And a few rounds does not mean regular target practice."

"But why was there no practice? Why was there no firing?"

"There were heaps of reasons to be found in ships which were hardly completed, or whose defects were not yet made good. You remember the old 'chestnut,' where the commandant of a fortress is asked why, on some solemn festival, he had not fired a salute? He replied: 'I had eighteen reasons for this: firstly, I had no powder. . .' He was not allowed to enumerate the other reasons. It is the same thing here. We have got on board our full allowance of ammunition and 20 per cent. besides. But that is all! More than that we must never expect, even if we should have to fight ten battles. Our attempts to get something aboard always end in failure. Why, I don't know. Possibly because our agents spend the money in advance. Probably these agents count firmly on being able to act with impunity, as they are covered by the high position of those called upon to preside over these commissions. For instance, there is just now a certain captain, known to you (specially promoted, a rising star), actively engaged in Paris on this business of the purchase of the South American cruisers, which long ago was made a hopeless mess of."

"How can one keep silence over all this?"

"Stop! Confound all your questions! In our hearts all these wounds are nearly healed up, and now you want to tear them all open again."

"For heaven's sake, abuse me as much as you like, but don't run away; tell me some more. You see, I don't know anything. How is this possible? If we are in such a mess, why was the squadron ever sent off?"

"Armada, not squadron."

"Well, let us say armada."

"What could we have done? Ought the Admiral to have sent in a report: 'As I foresee with certainty that we shall all go to the bottom, and as I am frightened of this, I can't go out to the war,' or what? Was he to state publicly that we had no fleet, but merely a collection of stage properties? No one would have believed him. Why, that is just the pity of it all! We should simply have been called cowards and traitors. Well, then, it is better to go to the bottom. Though, in faith, we are, through no fault of our own, accomplices in his guilt, and—we have to expiate these sins."

"We have to meet the reckoning, in fact?"

"Yes, yes; that is the right term. They always believed that it would last out our time, that there would not be war.

And the reports: 'Everything in the best of order,' were the best means of advancement in the service. But let me go now. To speak of these things drives me wild."

I then tried to cross-examine the navigating officer as to the degree of preparedness for war with respect to the movements in close order, performing of evolutions, etc., etc. He did not resemble the gunnery expert in matters of temperament in any way, he did not excite himself, did not get furious, but his quiet replies sounded all the more hopeless.

"Moving in close formations, keeping station—let us hope we shall learn all this during our long voyage. Time for practising changes of formation we shall, I dare say, find. That will be difficult enough! But as regards battle exercises with the whole squadron, or by divisions, the execution of different tactical plans, the practising of any tactical 'tricks'—that will have to be adjourned. That is a matter of years of preparation. With us an absurd idea—convenient enough from an economical and a routine point of view—has of late years cropped up, namely, that the art of naval warfare can be taught in the peaceful seclusion of an office, which converts the ships into floating batteries, and where, instead of holding manœuvres and experimental cruises on a large scale, one is satisfied with carrying out whole wars and individual battles—on paper. The incontestable truth that, as faith is worthless without action, so is theory without practice, and that skill is the crown of the edifice where handicraft is the foundation, was forgotten. This also explains the neglect of actual war experience, which shocks you so much. Even in the Pacific we did not know how to create thoroughly trained squadrons. The Japanese have done it. The English, the French, the Germans possess trained squadrons; we—possess none. You yourself have told us that the first cruise of the mobilised fleet at Port Arthur was spoken of as the 'Cruise of the Argonauts,' and how Makaroff had, on taking charge, to teach his ships, instead of battle tactics, the most elementary movements, in which, too, they rammed one another and got clubbed instead of forming line. Going into action, then, meant that one had not only to look out for danger from the enemy, but from one's neighbour in the fleet. This would be ludicrous, if it were not tragic. Meanwhile, a 'squadron' existed officially in the Pacific, and the Viceroy himself was never tired of reporting on its absolute preparedness for war. What do you expect from the Baltic, where, officially for over ten years, but as a matter of fact ever since Admiral Butakoff's time, no squadron has existed? Our wiseacres pretend that by multiplication of the guns, the projectiles, the *personnel*, the speed, etc., and by summing up all these results, a battle-coefficient of the squadron is obtained which is not much lower than that of Admiral Togo's squadron. But this is simply nothing but fraud, practised on the mass of ignorant landsmen. An infamous fraud! These wiseacres must know that *there* the factors are totally different: other guns and projectiles, experienced seamen, actual speeds, etc. And

the chief thing: *there* it is a real squadron; here—merely a heterogeneous collection of ships. This is sad, very sad, but, unhappily true. Now what do you think about Port Arthur? What is the state of affairs there? What can one hope for?"

"On 10th August the men of the garrison, together with those of the fleet, amounted up to about thirty thousand souls. What the amount of provisions and ammunition comes to is hard to say at all accurately. Even in the fortress this was a 'war secret.' The supreme authorities declared that these would last out at least until February, and even beyond. According to private information — from the different forts as regards powder and shell, from the magazines and stores as regards the quantity of provisions—this would appear to be correct. As regards the squadron, there is, in my opinion, little hope. As soon as the bombardment from the land front begins, how is the damage caused by gun-fire to be made good if every day increases it? Moreover, a large part of the guns are undoubtedly on shore, and firing away their ammunition there. A large proportion of the crews are employed in the fortifications, and, of course, suffering losses there."

"Yes, yes. . . . All the same, it would be a good thing if they could hold out until we arrive. It would always draw off some naval forces from us. By the time we meet, we shall have accomplished a long voyage, but the Japanese will have a long winter's blockade behind them. That is also not so bad."

The plan of the operations in store for us was neither known to the squadron in general, nor to me in particular. Of course, everyone had his conjectures and made his proposals; but, as I have remarked before, no one was inclined to discuss these. And why not? Because, whichever way one looked at it, the natural result was utterly hopeless, and because such discussions in time of war had a still more depressing effect on our spirits, which were low enough as it was.

(To be continued.)

SUMMARY OF THE OFFICIAL REPORT BY THE COMMISSION APPOINTED BY THE NETHERLANDS GOVERNMENT TO CONSIDER THE QUESTION OF PROVIDING EX-SOLDIERS WITH CIVIL EMPLOYMENT.

(Rapport der Commissie in zake de toekenning van burgerlijke betrekkingen aan gewezen militairen).

THIS commission was appointed on the initiative of the Minister of War, and was composed of representatives of each of the following State Departments: Foreign Affairs, Administration of Justice, Internal Affairs, The Admiralty, Finance, The War Ministry, Waterways, Posts and Telegraphs, Agriculture Industry and Commerce and Colonial Affairs.

The adjutant to the Minister of War acted as secretary to the commission.

The following broad principles were laid down by the Minister of War for the guidance of the commission:—

1. Non-commissioned officers who have served for at least 10 years in the army—of which period at least 8 years must have been non-commissioned service—should have a claim to civil employment in a State, provincial, or municipal department, or in an undertaking subsidized by the State, a province or a municipality. Length of non-commissioned service to be taken into consideration. No service completed before the age of 18 to count.

2. The appointments which were to be open to these non-commissioned officers were to be enumerated. Against each class of appointment was to be stated the proportion of vacancies ear-marked for ex-soldiers.

3. Appointments were to be classified and the necessary qualifications for each laid down.

4. Non-commissioned officers to be considered for any employment must be:—

a. Physically fit.
b. Well behaved.
c. Able to pass an examination. A syllabus of examination for each category alluded to in (3) above was to be drawn up.

5. The board charged with the conduct of the examination alluded to in (4) above should be composed of officials of the General Administrative Department of the branch which the candidate aspires to join. In the case of departments other than State departments, the board should be appointed by the administration of the province, municipality or subsidized undertaking concerned.

6. The composition of the boards, the intervals at which examinations should be held, and the methods of application by candidates for examination were to be detailed.

7. At the conclusion of the examinations (which should only be attended by non-commissioned officers fully qualified under 4 (*a*) and (*b*)) certificates should be granted to those apparently possessing the necessary qualifications for the posts available. The names of those to whom certificates have been granted should be published in their order of merit.

8. Successful candidates should only be given immediate employment when actual vacancies exist, and there is no waiting list from previous examinations. If no vacancies are immediately available, candidates may be allowed to remain in military service until vacancies occur. After a certain number of years (the number to be settled) have elapsed, the names of candidates who have not yet received employment should be removed from the list. Before they could be replaced on the list re-examination would be necessary.

9. Non-commissioned officers thus obtaining civil employment would continue to be bound by the provisions of the Reserve Forces Act (Land Forces) 1905 until they reached the age of 50.

10. If the candidate so desired it, or if the department concerned deemed it advisable, a candidate might be appointed as a probationer for one year. During this year he would draw no pay from military sources, and would be granted permission to wear plain clothes.

The following is a brief summary of the report drawn up by the commission.

CHAPTER I.

Section I. The tendency to reduce the period of militia service increases year by year, and therefore the problem of securing an efficient cadre of non-commissioned officers increases yearly in importance.[1] The need for a constant flow of fresh blood throughout the cadre results in a steady ebb of trained men. If this ebb and flow can be regulated on sound principles the attractions of the cadre are much enhanced.

[1] The Dutch have a Militia Army (compulsory service) with permanent cadres ("volunteers") recruited by voluntary enlistment. The period of training for conscripts (miliciens) in the dismounted branches of the Active Army is 8½ months during the first year of service, and a total of 12 weeks in the remaining 7 years of their service.

The position of a non-commissioned officer can, however, be made too attractive by the increase of pay, etc., so often advocated. The result of this would be that the old hands would stay on and younger men would get no chance. Certain positions are best filled by older men, but, generally speaking, if civil occupation can be found for them, it is to the interests of the army that non-commissioned officers should leave it at about the age of 30, *i.e.*, with about 10 years' service.

A leaven of trained instructors is a necessity for the education of the annual contingents. But even if this leaven is provided by reducing the number of regular ("Volunteer") instructors and substituting militiamen (*i.e.*, conscripts) as will be the tendency in future, the necessity for ultimately finding civil employment for the latter still remains. The laws of France and Germany can be cited in support of this statement.

The representative of the Navy stated that the above conditions do not apply to his branch of the service. Various reasons are given for this; they may be summed up by saying that the Navy considers it desirable to retain the services of its petty officers for as long a period as possible, provided that they remain physically fit and are suitable for promotion to a higher rank than that of corporal. Petty officers should be induced to remain in the Navy by the prospect of full pension at the expiration of their period of service. Vacancies in civil life should, however, be ear-marked for certain Naval ratings shown in special categories.

As a consequence of the above, the commission decided to place the Navy and the Army on different footings.

Section II. contains a short historical retrospect of previous legislation on the subject.

Section III. summarizes the scale of pay and periods of service in the various arms with a view to comparing the general positions of candidates for civil employment on leaving the service.

Section IV. lays down the general principles governing the grant of civil employment. These are as follows:—

Candidates must be suitable for the positions to which they aspire.

They should be divided into groups for purposes of theoretical instruction.

The number of entries in a man's defaulter sheet during his whole period of service should be taken into consideration.

The proportion of each class of vacant appointments that should be ear-marked for ex-soldiers should be about fifty per cent.

An Executive Committee should be appointed to act as a Labour Bureau in the interests of employers and employed.

Section V. deals with certain modifications which would be necessary in the Military Pensions Act. Paragraph 6, Clause 2 of this Act granted proportional pensions to non-commissioned officers who had completed 15 years' service. This resulted in a general exodus of non-commissioned officers, and placed a

heavy burden on the Treasury. The commission suggests that 15-year men wishing to retire might be given civil employment in lieu of a pension.

Chapter II.

Section I. describes the various classes of employment common to all State Departments, and the scales of pay in each class.

Section II. deals with special classes of employment in the above departments.

Section III. gives a list of and discusses the classes of State employment that could be ear-marked for ex-soldiers, and gives the rates of pay and conditions of service. The list is complete to 1st November, 1908. It includes appointments such as messenger, porter, caretaker, clerk, etc., in the buildings of Departments of the State, with salaries ranging from 400 florins (£33) to 1,100 florins (£92) per annum.

Chapter III.

This chapter describes the different classes of employments available in the Departments of the Provinces, Municipalities and Waterways. These include appointments such as first or second clerk to secretaries of the provincial bodies; minor officials of the Provincial Waterways Department; conductors of the provincial steamboat services, the salaries being within the same limits as in the last paragraph.

Chapter IV.

This chapter discusses the question of appointments which could be made available *in private enterprises enjoying a State subsidy*, and expresses the opinion of the commission that private unsubsidized companies should not be compelled to provide ex-soldiers with employment. The commission, however, recognises that this opinion, if acted upon, would considerably narrow the field of suitable employment, and suggests that the Minister of War might come to an understanding with certain private firms to reserve under certain conditions (not stated) situations for a proportion of ex-soldiers. Ex-soldiers employed in this manner should be under precisely the same conditions as those employed by the State.

Chapter V.

In this chapter the commission formulates certain proposals divided into three groups. In the case of two of these groups definite schemes are completely worked out. For the third group certain main principles only are laid down.

Section I. gives a draft of a proposed Act embodying the following considerations:—

1. The date at which the right to civil employment should be earned.

2. The description of the various classes of employment that could be made available.
3. The appointment of an Executive Committee.
4. The method of settling disputes as to employment or non-employment.
5. The rights and obligations of ex-soldiers provided with civil occupation.
6. The means whereby the co-operation of the several Departments can be secured.
7. The cost of the scheme.

Article 1 of the draft Act lays down that the minimum period of service entitling a candidate to consideration for civil employment shall be 10 years, during 8 of which he must have been eligible for non-commissioned rank.

As regards (2) it is laid down that soldiers who fulfil the conditions in the last paragraph have a right to an appointment under the Government, a Province, a Commune, or a Waterways district, or in an undertaking or business subsidized by the Government, or by a Province or Commune.

Article 6 defers until the age of 55 the grant of any Military pension earned by such service, and fixes the rate of pension for each year of service at a thirtieth of the sum laid down in the Pensions Act of 1902.

Article 7 lays down that a soldier who has been granted civil employment remains liable to Reserve Service until the age of 40, but reserves the right of reducing this period under certain conditions.

Section III. contains a draft of the rules of procedure for the Committee. The Committee is to consist of a pensioned, or "honorably retired," field officer as president, and four other members.

The Committee is to be nominated for four years by the Minister of War. The members of the Committee are to be remunerated on a scale laid down.

The cost of the scheme is to be defrayed from the army estimates.

Chapter VI.

This chapter deals with the financial side of the proposed legislation. The saving resulting from the cadre of non-commissioned officers being composed of younger instead of older men is considered. Young non-commissioned officers, it is stated, *are less likely to be married than older men,* and there should be consequently a saving in lodging allowances. It is computed that 60,000 guilders (£5,000) a year could be saved under this heading alone as compared with the 1904 Estimates. A saving of 137,000 guilders (£11,417) a year in extra pay for length of service would also be effected.

The cost of the Executive Committee is assessed at 8,100 guilders a year (£675).

The cost of the extra school facilities that would be required to enable non-commissioned officers to qualify for civil posts is placed in round figures at 12,000 guilders (£1,000) a year.

The total savings on pensions, it is calculated, would increase from 22,000 to 484,000 guilders (£1,833 to £40,317) during the period 1909 to 1934. After the latter date the cost of the annual pension list would remain stationary.

Chapter VII.

This chapter describes the alterations in existing laws and conditions necessitated by the principles of the Act. An addendum follows, which elucidates obscure points in the Report that seem to affect the pay and prospects of the serving soldier. The signatures of the members of the commission are then appended.

Appendices.

Appendix A consists of extracts from speeches and articles for and against the so-called principle of "capitulations."[1]

Appendix B gives full particulars of the various situations eligible in State Departments.

Appendix C compares in tabular form the annual cost of pensions under:—

a. The Pension Act of 1902.
b. The proposed new Act.

Appendix D gives the same information in graphic form.

Appendix E contains a short summary of the measures adopted by certain foreign countries: Denmark, Germany, Belgium, France, Austro-Hungary, and proposals which have been considered in Sweden, in the matter of providing civil employment for ex-soldiers.

As regards the first two of the above named countries, these measures may be summarized as follows:—

Denmark.

Provision of employment for ex-soldiers.

The conditions are as follows:—

I. *For non-commissioned officers of the Permanent Cadres* 12 years' service is necessary. They can apply for various situations as follows:—

a. Customs (can be detached for 1 year from their corps to learn their work).
b. Municipal employment, such as police, etc. (The municipal authorities report vacancies to the Ministry of War, and they are published in the *Kundgovelse* (Army Orders)).

[1] Re-engagement of men who wish to become non-commissioned officers.

c. Other situations, such as messenger, sexton, hall porter, warder, or appointments in the Post Office; in the latter case the same conditions obtain as in (*a*) above.

When a non-commissioned officer takes up civil employment, he leaves the service either with or without a pension. He cannot return to his former position even if he does not like his new occupation.

II. *For non-commissioned officers of the Militia*[1] one year's service is necessary; they can then apply for situations as minor officials in the postal service, or the Customs; as porters in castles or palaces, or as foresters.

When they have served for 2 years they can apply for those positions which are open to Militia Officers. (See below).

III. *Militia Officers* must have served 1 year in their rank; they can then apply for situations as post or telegraph assistants, postmasters, castle and palace officials.

A report from the military authorities accompanies the application (stating service, ability, diplomas, etc., and recommendations).

As a result of the raising of the pay of non-commissioned officers in 1902 very little use is made of the opportunities for obtaining civil employment.

The non-commissioned officers of Artillery and Engineers receive an excellent education at the "Eléve School," which assists them considerably in obtaining civil employ, far more so than the system referred to above. This is not the case in the Infantry and Cavalry, on whose education less care is bestowed.

GERMANY.

The conditions are laid down in a section of the "*Gesetz über die Versorgung der Personen der Unterklassen des Reichsheeres, etc.,*" which came into force on 1st July, 1906.

There are 3 categories of pensioners below the rank of officer:—

a. All non-commissioned officers and lower ranks whose capacity for earning their living is totally destroyed, or at least reduced 10 per cent. by injury received while on duty, have a claim to pension.

b. Re-enlisted soldiers with at least 8 years' service, whose capacity for earning their living has been reduced at least 10 per cent. as a result of diseases contracted during their service, have a claim to pension.

c. Re-enlisted soldiers with at least 18 years' service have a claim to a pension for life.

[1] The Danish Army, like the Dutch, is on a Militia basis, with compulsory service. The term "Militia" officers or non-commissioned officers applies to those conscripts who are promoted from the ranks of each annual levy.

The conditions on which civil employment may be taken up are as follows:—

1. Re-enlisted soldiers earn the right to a civil employment certificate (Zivilversorgungsschein) after 12 years' service, if they are suitable to be made officials.

2. Re-enlisted soldiers with less than 12 years' service, who, on account of bodily injuries, are no longer fit for military service, have a claim to be provided with a civil employment certificate, if they are suitable.

3. Non-commissioned officers and men who are not re-enlisted soldiers can, if they apply, be given a "situation certificate" (Anstellungsschein) for positions as subordinate officials, if they are suitable.

4. The middle (clerical) and subordinate official situations in the Imperial, State and Communal offices, in the insurance offices, as well as in State or similar institutions, which are partially or entirely maintained by the State, etc. (except the Forestry Department), are all to be filled for preference by possessors of the certificates referred to in 1, 2, and 3 above.

5. The State may repay its obligations to those re-enlisted soldiers referred to in 1 by a monthly pension of 12 marks.

6. Or, if the soldier (referred to in 1) wishes, by a single payment of 1,500 marks; but if he is given civil employ later on he must refund the sum.

7. As regards the kinds of situations which are thrown open to re-enlisted soldiers, the following may be noted:—

In all departments of the State Administration (except the office of the Imperial Chancellor) all vacancies as:—

Clerical officials.
Inspectors.
Servants.
Porters.
Watchmen (warders).
Also Assistants in Statistical Institute.
Book-keepers in State Bank.
Various positions in the Kiel Canal Administration.
Situations in the Intendance Service, Hospitals, and Instructional Establishments.
Various situations in Postal and Telegraph Departments.
State Railways.

Some of the above situations require that the applicant shall pass an examination.

Non-commissioned officers must make personal application for the situations.

Six months' or one year's probation is the rule in the Postal and Railway Services.

NIGHT COMBATS AND NIGHT MANŒUVRES.

THE following is a summary of the principal points dealt with by Lieut.-Colonel Balck, C.V.O., of the German Infantry, in his recently published work, "Night Combats and Night Manœuvres: Studies from Military History and Experiences in Time of Peace."[1]

Most of the incidents referred to in the book are described at length with the assistance of plans and sketch maps. The examples cited from the South African War do not appear to be correct in all cases.

In night operations, victory depends less on numbers and on fire-effect than on moral factors, such as discipline and steady nerves. A good night attack may produce panic among the defenders, as in Blücher's evening attack after Gross Görschen, 1813, and the Crown Prince's attack on Rezonville, 1870. At Magersfontein even the steady Highlanders were seized with panic. On the other hand, the French force of 1,400 men at Hué, when surprised by a night attack by thousands of Annamites, fought well.

Surprise is the most important element of success.

Approaching the enemy by night is difficult, although it saves time and casualties. Men get nervous in the dark; maps are useless, and command difficult. At Gravelotte, after fruitless attacks by day, the Germans attempted a night attack in force on the French left wing. Forty-eight German battalions were involved in hopeless confusion, and the attack had to be abandoned.

There are many examples of troops firing on their own side in the dark. At Gravelotte the 73rd Regiment, when fired on by their comrades, sang the "Watch on the Rhine." After Sedan, Würtemburg and Bavarian troops fired into each other, causing heavy casualties.

At Nicholson's Nek, in the Boer War, the English marched out in a column of two battalions, with 340 led mules in the centre of the column. In the dark the rear battalions mistook the mules for Boer horsemen and fired into them; the mules stampeded through the leading battalion and carried off the whole of the ammunition. The column was surrounded at daybreak, and surrendered, having fired away their cartridges in the dark.

Retrospect up to the Russo-Japanese War.

After the Napoleonic wars, the European armies showed an unmistakable aversion to night attacks. Blücher's saying,

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[1] Nachtgefechte and Nachtübungen. R. Eisenschmidt. Berlin, 1910.

"that he feared a night march more than the enemy," was constantly quoted; although as a matter of fact Blücher never hesitated to work at night when necessary—witness his operatons on the Katzbach.

Clausewitz held that the difficulties of control were such as to render night attacks suitable for small forces only.

Rüstow (1865) held that the increased efficiency of artillery had rendered night attacks difficult to execute.

Up to 1870, many such combats (as at Podol, 1866) occurred at night, but they were mostly accidental, and the German 1869 Regulations did not encourage night operations. Even the 1876 Regulations contained but slight references to night attacks.

The success of night operations, such as the storming of Kars, in the Russo-Turkish War, induced a change of opinion. Lord Wolseley, in "The Soldier's Pocket-Book," 1879, wrote: "The army which first learns to march and to fight at night will win brilliant victories."

Lord Roberts, in 1878, took the Peiwar Kotal by an attack at dawn. In 1882 Lord Wolseley carried out a night attack on a large scale at Tel-el-Kebir, against a superior force strongly entrenched. This attack was most carefully prepared and carried out.

In Germany, Colonel von Widdern (1889) strongly advocated night attacks. Major Kunz (1879) took a different view. After careful investigation he found that 83 night combats had occurred in 1870-71; of these 11 were continuations of a successful battle; in 18 cases the attack failed altogether, and in only 11 cases was the attack completely successful.

The German 1890 Field Service Regulations laid down that "night operations are of not infrequent occurrence." The matter is handled most thoroughly in the English 1889 Regulations, which devote 19 pages to the subject.

The Russian and French 1889 Regulations also refer to night attacks, and the Austrian Regulations alone make no mention of them.

In 1894 General Oshima led his brigade against a superior Chinese force at Asan in the night, and executed a successful attack at dawn.

The Italians at Adowa attacked a much superior force of Abyssinians in the dark; but the attack failed for want of preparation, and the Italian force was routed, losing 66 per cent. of the troops engaged in killed, wounded and prisoners.

A brilliant contrast to this is Lord Kitchener's carefully prepared attack on the Mahdists at the Atbara, carried out in the early hours of the morning, on the 8th of April, 1898.

This success led the English authorities to believe that a night march followed by an attack at dawn was a certain means of ensuring success. But they forgot that such an operation requires most careful reconnaissance and thorough preparation.

The Boer War broke out in 1899. At the beginning of the war, on the night of the 20th of October, an English column was surprised in camp at Talana. On the 30th of the same month the English attempted a night attack on the Boers before Ladysmith, which resulted in the disaster of Nicholson's Nek. At Stormberg, on the 9th December, General Gatacre's night attack failed, all the preparatory arrangements having broken down. The disastrous result was principally due to the physical exhaustion of the troops. It must always be remembered that a night march imposes a far more severe strain on the men than an advance by day.

In the Western theatre of war several night combats occurred. At Belmont the Guards' night attack was technically successful, but the Boers had vacated the position.[1] At Magersfontein the careful reconnaissance and thorough preparation insisted on by Lord Wolseley and Lord Kitchener were utterly neglected, and the attacking force themselves were surprised in quarter column by the Boers and defeated with heavy losses. The troops behaved gallantly, and some actually got into the Boer position, but were driven out by the shrapnel fire of their own guns.

At Spion Kop, Hart's brigade established itself within 400 yards of the Boer position, but Hart was refused permission to storm it by a night attack. The fight next day was indecisive, both sides retreating. The English troops fought well, but the conduct of the battle was deplorable.

At Ladysmith several small night expeditions against the Boers were skilfully and successfully carried out.

In the later stages of the war several English posts were surprised at night, as at Noitgedacht. The Boer night attack on Belfast, on the 7th December, 1901, failed owing to the vigorous resistance of the garrison under General Smith-Dorrien.

The English flying columns several times attempted to close on Boer commandos by night and to surprise them at dawn, but this plan was abandoned[2] owing to the difficulty of locating the Boers.

Embodiment of the Experience Gained in the Regulations.

The English 1902 Regulations encouraged the system of a night advance to seize positions from which to attack at dawn. Great stress was laid on the close and minute reconnaissance of the ground to be traversed.

The Italian 1903 Regulations were evidently influenced by the defeat at Adowa. They gave elaborate instructions for the previous reconnaissance and for the organization and procedure of the attacking force. But the force of the instructions is weakened by the dictum that large bodies of troops are on no

[1] This was not the case.—G.S.

[2] This method was much used and never abandoned.—G.S.

account to attempt night operations, which are suitable for small forces only and are not to be attempted without a definite object.

The Russian 1901 Regulations laid down that small forces may execute night attacks, but that large forces should advance by night and attack at dawn. Night attacks are to be carried out by infantry alone; independent columns are to be directed on particular points, and the bayonet alone is to be used. On the defence at night, half the companies in the firing line sleep while the others stand to their arms. The only nature of fire allowed is volley fire at short range, followed by bayonet charges.

The French 1904 Regulations favoured the system of seizing important supporting positions by night with infantry alone, and attacking at dawn supported by artillery and cavalry. Night attacks are to be carried out by independent columns directed on separate points; they are to be carefully prepared, and the bayonet alone is to be used.

The Austrian 1903 Regulations laid down that extensive operations such as movements of troops may be undertaken at night, but that night attacks are especially suitable for small bodies of troops. Independent columns are not recommended. The scheme must be as simple as possible, and the attack must be delivered in close formation.

II. *Night Operations in the Russo-Japanese War.*

The Japanese troops were at first insufficiently trained to undertake night work, and Sir Ian Hamilton remarks that they were more German, in their aversion to night operations, than their German instructors. On the Russian side Kuropatkin, in his instructions to his troops, recommended night attacks on a small scale, and cautioned them against being surprised at night.

The first night attack on a large scale was made by the Japanese at An-ping on the 25th-26th August, 1904. The attack was carefully prepared and was made in several independent columns over very rough ground. The assault was timed for 4.30 a.m., but the attacking troops were discovered at 3 a.m., and the assault had to be delivered at once. Two of the four columns broke through the Russian line, and the attack was successful.

At Manjuyama, on the 30th-31st August, 1904, the Japanese right wing crossed the Tai-Tzû River in the night and attacked the entrenched position held by the Russian 35th Infantry Division. There was no question of surprise. The attack was made when the moon rose at 10 p.m., and was successful, the Russian fire being ineffective. By daylight the Japanese had entrenched the captured position. Next day the Russians made several fruitless attacks on it, and finally attempted a night attack. This was badly delivered, many of the troops remaining behind, and was repulsed.

On the Sha Ho, on the 10th-11th October, 1904, the Japanese attacked and drove in the Russian outposts at night; the battle continued all next day, and the Japanese again attacked on the night of the 11th, this time successfully. The Russians thenceforward fought a retreating action. At 5.30 a.m. on the 14th the Japanese 3rd Division broke through the Russian 10th Army Corps and captured 3 Russian batteries. On the 16th the Russians resumed the offensive, and on the night of the 16th-17th they stormed Putilov Hill with the bayonet. The battle ended through the exhaustion of the troops on both sides.

A night attack on a large scale was made on San-kuai-shin Shan, on the 11th October, 1904, 23 battalions being employed. The attack reached the Russian line at 3 a.m., was received with a vigorous fire, and came to a standstill until the left of the attacking line outflanked the Russians and obliged them to retreat. Here the attacking troops got into the wildest confusion, and might have been driven out of the position, but the Russians made no attempt to do so till next day.

On the Shih-li Ho several night attacks were made. On the 11th October the 5th Japanese Infantry Brigade, while attempting a night attack, was itself surprised and repulsed.

At Yen-tu-niu-lu the Russians made a night attack on the fortified village with 8 battalions. They were received with a heavy but ineffective fire, and got in with the bayonet, without firing a shot. The Japanese retreated with heavy loss.[1]

At Mukden the fighting lasted for 3 days, day and night, and finally resulted in the envelopment of the Russian right wing, which decided the fate of their army.

Russian and Japanese opinions.

General Kuropatkin holds that the best means of meeting night attacks is to keep the troops nearest to the enemy fresh by frequently relieving them. He is averse to night attacks on the large scale. On the other side, the Japanese Staff lay down that the advance is to be continued systematically by day and night, entrenching the ground gained, till on the third night the infantry arrive within 300 or 400 yards of the position. Three or four sham attacks are to be made, and the real night attack is then to be delivered.

Embodiment of War Experience in Regulations.

The English were represented by a number of military *attachés* during the Manchurian War; these officers lay great stress upon the care with which the Japanese reconnoitred and prepared their night attacks. Generally, they consider that night attacks should only be delivered from a position at a short

[1] A long description of the fighting around Putilov Hill at the beginning of October, 1904, is given.

distance from the enemy; if the troops have far to go, confusion results.

The German 1906 Infantry Regulations attach increased importance to night attacks. These require thorough preparation, and the scheme must be as simple as possible. It is of less consequence to push the attack home than to capture good positions from which the attack can afterwards be delivered. In exceptional cases the advance may terminate in an assault; but this must be made from a "storming position" in which the troops are formed up under cover of darkness. Night attacks are to be frequently practised at manœuvres.

The Japanese Regulations attach great importance to night operations, which are to be frequently practised so that the troops can move with confidence in the dark.

In Belgium the authorities share the French aversion to night attacks, which are to be confined to small bodies, though larger bodies may seize positions under cover of darkness and attack at dawn.

The Swiss reckon most confidently on executing night attacks, which are well suited for small compact forces acting against an enemy greatly superior in numbers.

The English 1909 Field Service Regulations devote 14 pages to night operations.[1]

Means at the Disposal of Combatants at Night.

Fire effect of Infantry.

This is so poor that it is better for the attack not to fire at all. Swiss experiments show that considerable effect can be produced on a formed body of infantry at 300 metres in the dark; German experiments gave 18 per cent. of hits at 150 metres. The kneeling position gave the best results. For defence, fixed rests, made of stout timbers notched and fixed in the parapet, give good effect; these were tried in Austria, and from 4 to 6·5 per cent. of hits were obtained at 700 paces. Machine guns, if carefully aimed and clamped by day, are effective at night.

Illumination.

The following may be used: Straw fires, pistols firing balls of illuminating composition, which light the foreground for 10 seconds up to 200 yards; boxes of illuminating composition in front of a position, fired by pulling a wire. But the principal means of illumination is the electric searchlight, successfully used by the Russians at Port Arthur.[2]

The illuminating detachment consists of a dynamo squad, a projector squad, an observing party, and the drivers. The projector must be set up on the highest available ground, and so as not to dazzle one's own troops.

[1] These are quoted at considerable length.

[2] This hardly seems to have been the case.—G.S.

If an observer standing by the projector can see 3,000 metres, then an observer 3,000 metres further forward can still see 2,000 metres, or 5,000 altogether, so that advanced observing parties can be used with advantage.

In undulating ground the searchlight often favours the attack, since the troops can advance unseen in the shadows.

It is impossible to see through the beam laterally; therefore a searchlight beam may be used to conceal one's own position by being thrown across the front. Or advancing troops may be concealed by beams crossed in front of them.

Hand Grenades were freely used by the Russians at Port Arthur, and were also improvised by the Japanese. Slings were used to throw them.

III.—*Night Operations in Field and Fortress Warfare.*

The extent to which the use of night operations has increased in recent wars is very marked.

In fortress warfare a night advance is the only means open to the besieger of crossing the dangerous zone under the fire of the fortress. But the same applies to an entrenched position.

Again, the darkness may be used to establish a holding attack in front, followed by a flank attack at dawn.

Darkness enables the numerically weaker side to attack with a prospect of effect, or to withdraw from a losing battle.

A pursuit by night enormously increases the effect of victory, *e.g.*, Custozza and Woerth. The attacker's fear of undertaking a night pursuit has often allowed the defeated side to withdraw unmolested at nightfall, *e.g.*, Brienne and Servigny.

Darkness doubles the efficiency of the good soldier and renders the bad soldier helpless.

Night Marches.

These are unavoidable in war. At the present day they may be necessary in order to conceal movements from observation by the enemy's balloons or airships. They afford a means of withdrawing from a losing battle, *e.g.*, Beaumont, 29-30/8/1870.

In guerilla warfare night marches will be used to a large extent.

March discipline is all-important in marching at night.

Advance to a Night Attack.

German Infantry Regulations, paragraph 375: "The attack on a strongly-entrenched position will often only be possible under cover of night."

A careful reconnaissance is all important, and must be carried out by day and by night. Since the defender will do all in his power to prevent this reconnaissance, strong parties

(reconnoitring companies) must be employed. Night reconnoitring parties may be screened by searchlight beams. In the advance, the best means of maintaining communication is by telephone. Recognition badges must be used.

The advance is best made in line of battalion columns keeping touch, but when the attack is delivered each column must fight independently. But the amount of light and the nature of the ground considerably affect the choice of formation.

The best time of the assault is before dawn or before moonrise, as the longer the defenders are kept on the alert the more tired they will be. The German Infantry Regulations give minute directions for the assault. (Paragraphs 378-390). If the assault fails, the attacking party must form front and entrench.

All preparations for the defence must be made by day, and the men should be allowed to sleep in peace, protected by advanced sentries.

The attacker will usually have driven in the outposts; in any case it is rarely advisable for the defender to engage in a night combat on the outpost line. But when two forces have been fighting all day, and are still in contact, the outpost line and the line of defence must be the same. Here advanced patrols are useless, and strongly entrenched advanced posts must be employed.

Use of Artillery at Night.

Artillery fire at night is ineffective unless the target is illuminated by searchlights. English experiments show that it is possible to range on such a target up to 2,400 yards, or further if advanced observers be used. General Rohne recommends time-shrapnel ranging. Captain Aizier's method, based on the order of appearance of the time-shrapnel bursts, also seems suitable. (Chalon's experiments).

Artillery fire may be used to cut off the section of the position attacked and to prevent it from being reinforced. Advanced batteries will have to change position at night.

Guns intended to dismount the enemy's pieces may be pushed forward at night. The fighting at Port Arthur affords useful examples.

Surprise Attacks.

These are specially suitable for cavalry, which can arrive from a distance and attack dismounted. But infantry is better able to profit by success. Speed and secrecy are essential.

The English Cavalry Regulations (1907) are the only ones which mention the employment of cavalry in this way.

Cavalry are especially liable to panic at night, *e.g.*, Gersfield, 1866. A good instance of a cavalry night attack is Stuart's surprise of Catlett's Station in 1862.

Defence.

Small bodies of troops should shift camp daily, preferably at dusk. They should not occupy places too large to hold. Cavalry must be especially careful, since they require time to saddle up, *e.g.*, Etrepagny, 28/11/1870.

Fortress Warfare.

In a siege the troops rest by day and march and fight by night. The defender especially must utilize his intimate knowledge of the ground by sorties and night operations, *e.g.*, Siege of Paris. He may be able to delay the construction and arming of the siege batteries considerably.

The besieger must occupy successive positions by night in his approach. The same rules hold good as in seizing a position for attack, in the field, *e.g.*, Sabastopol and Port Arthur.

Night Manœuvres.

Both the German and Austrian Regulations lay stress on the necessity for the peace training of the troops in night work. Sir Ian Hamilton (1907) issued a circular to the same effect.

Now-a-days night training is no less necessary than day training.

In Japan, since the war, night manœuvres have been constantly carried out. The Japanese recruits go through a 12 weeks' course of training, of which the last fortnight is devoted to night work.

Night manœuvres must be carried out in dark nights and under a full moon, both in summer and when the ground is covered with snow.

Attention must be devoted to maintaining direction by the stars. Little time should be devoted to individual instruction, but manœuvres with formed bodies should be commenced as early as possible, first by companies and then by battalions and brigades. Particular attention should be devoted to night outposts, sentries, and patrols.

Night rides should be carried out, preferably in the dark winter months. In these, troops must be posted to represent the enemy. Maps for these rides must be specially prepared, the route being marked by a broad black line. Wind-proof matches are to be used for reading maps. The winter campaign of 1807 forms a good basis for night schemes.[1]

CONCLUSION.

Night work is difficult; yet the Navy do not suspend operations at night, and the soldier should be no less handy than the sailor. Sir John French has expressed himself to this effect. If two opponents meet, and one is thoroughly trained in night work, while the other is not, the former will have an immense advantage.

[1] Specimen schemes are given.

NAVAL NOTES.

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The following are the principal appointments which have been made :—Captains—C. E. Le Mesurier to "Theseus"; E. R. Pears to "Agamemnon"; B. Currey to "Exmouth," as Flag-Captain and Chief of Staff to Vice-Admiral Sir E. Poe; E. H. Smith to "Irresistible"; J. E. Drummond to "Vindictive"; F. W. Kennedy to "Trafalgar"; C. E. Monro to "Hearty." Commander—G. W. Vivian to "Shearwater."

The first-class armoured cruiser *Minotaur*, bearing the flag of Vice-Admiral Sir A. L. Winsloe, K.C.B., C.V.O., C.M.G., the new Commander-in-Chief in China, arrived at Singapore on the 5th ult., and on the following day Vice-Admiral Sir A. L. Winsloe formally took over the command from Vice-Admiral the Hon. Sir H. Lambton, K.C.B., K.C.V.O., who left for England the same afternoon in his flagship, the first-class armoured cruiser *King Alfred*.

Rear-Admiral H. P. Williams has been appointed to succeed Rear-Admiral Sir D. Gamble, K.C.V.O., who has resigned owing to ill-health, as Naval Adviser to the Turkish Government.

First Lord's Explanatory Statement of the Navy Estimates, 1910-1911.—The following are the principal points in the Statement, etc.:—

The Estimates for 1910-11 amount to £40,603,700, as compared with £35,142,700 for the current year.

The principal increases occur under the heads of Pay or *Personnel* (Vote I.), Clothing and Victualling (Vote II.), Ordnance (Vote IX.), and the three sections of Shipbuilding (Vote VIII.).

The numbers required for manning the Fleet are 3,000 more than were asked for in the Estimates for the current year. This increase is due in part to a revision of the scheme of complement of ships of war, in order to fit them for the needs of modern warfare, and in part to the requirements of new ships now being placed in commission and under construction.

The shipbuilding and armament votes (Votes VIII. and IX.) together show a very large increase of over five millions, caused almost entirely by the increase in the shipbuilding programme approved by Parliament last year. In Vote IX. there is also a fresh charge owing to the beginning of the manufacture of torpedoes at the new factory at Greenock.

Shipbuilding.

New construction for the year will cost £13,279,830, as against £8,885,194 for 1909-10. Of this amount £11,850,790 will be spent on the continuation of work on ships already under construction, and £1,429,040

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for beginning work on ships of the new programme, which is composed as follows:—

5 large armoured ships,
5 protected cruisers,
20 destroyers,

and a number of submarine boats estimated to cost a sum of three-quarters of a million pounds in all.

Between the 1st April, 1909, and 31st March, 1910, the following ships will have been completed and become available for service:—

5 battleships - - - - -	*Temeraire.* *Collingwood.* *St. Vincent.* *Superb.* *Vanguard.*
2 unarmoured cruisers - -	*Boadicea.* *Bellona.*
9 destroyers - - - - -	(6 ocean-going vessels of the *Tribal* class, the large experimental ship *Swift*, and the 2 *River* class vessels purchased from Messrs. Cammell, Laird, & Co.)

6 First-Class Torpedo Boats (coastal destroyer type).
16 Submarines.

On the 1st of April, 1910, there will be under construction:—

7 battleships.
3 armoured cruisers.
9 protected cruisers.
2 unarmoured cruisers.
37 torpedo boat destroyers.
9 submarines.

Of these, the following are expected to be completed by the end of the financial year 1910-11:—A battleship, an armoured cruiser and an unarmoured cruiser, 5 protected cruisers, 20 destroyers, and 4 submarines.

Provision was made in Navy Estimates 1909-10 under the ordnance vote, for work in connection with aerial navigation, and important experiments have been carried out by the recently formed Aeronautical Branch. Officers, petty officers, and men are now being trained in aeronautics under the direction of a captain. The design of an experimental airship has been completed, and a ship is now under construction. Satisfactory progress is being made, and it is expected that this ship will be completed and ready for trials in the summer of this year, when a large number of experiments will be made to test the value of this vessel under all practical conditions. This service has now been transferred from the ordnance vote to the shipbuilding vote.

After careful inquiry as to the best means of meeting the docking requirements of the immediate future, two large floating docks, capable of taking any war vessel now building or likely to be designed, have been

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ordered, and will be completed during 1911. It is intended to station them one at Portsmouth and the other in the Medway.

The firms to whom the provisional orders for the floating docks have been given are Messrs. Cammell, Laird, and Messrs. Swan and Hunter. Preparations for building are being pressed on, as are the arrangements for berthing them when delivered.

Administration.

In development of the arrangements for preparation for war, the Naval Intelligence Department has been reorganised, a new Department—the Naval Mobilisation Department—being formed, and a permanent body, termed the Navy War Council, has been established at the Admiralty. The Council consists of the First Sea Lord as President, the Director of Naval Intelligence, the Director of Naval Mobilisation, and the Assistant Secretary of the Admiralty, the latter acting also as Secretary of the Council. The Head of the Naval War College attends and acts as member of the Council when the business is such as requires his presence, and other responsible officers will be called in to assist and advise when required.

The Naval Mobilisation Department, in addition to other duties, has taken over so much of the work of the Naval Intelligence Department as related to the mobilisation of men and material.

The committee appointed last year to enquire into the Naval Medical Service has submitted a most valuable report, and their recommendations, some of which are of the greatest importance and of far-reaching scope, are at present receiving the detailed consideration of the Board of Admiralty. It is hoped that steps will be taken to give effect to many of them at an early date.

A modification has been made in the Hydrographic Department with a view to ensuring that the Department shall be able to command the services of officers with recent experience in the navigation of fleets. The Superintendent of Sailing Directions has therefore been replaced by a new Assistant Hydrographer. In future one of the Assistant Hydrographers will be an officer who has done surveying work at sea, and the other an officer who has had recent experience of the navigation and command of ships in a large fleet

Personnel.

Improvements have been made in the scale of retired pay for officers of the military branch, as a temporary measure, to enable the more senior officers of commander's and lieutenant's rank to retire on better terms than hitherto, and thereby to relieve the congestion on the commanders' and lieutenants' lists. Officers who avail themselves of these exceptional terms of retirement must undertake to place their services at the disposal of the Admiralty if required.

Arrangements for extending the number of naval ratings who are eligible for warrant rank have been completed and the following classes can now attain the position of warrant officer :—Writers, ship's stewards, ship's police, ship's cooks. Warrant rank has also been introduced for the telegraphist branch, as was indicated two years ago when this class was established.

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In view of the higher educational standards now reached by the men of the Royal Navy, particularly in certain classes, it has been found necessary to make considerable improvements in the pay and prospects of Naval Schoolmasters. Amongst other advantages the proportion of commissioned warrant officers and warrant officers allowed to this branch has been increased, the relative rank of lieutenant will be obtainable by Chief Schoolmasters on retirement, and an improved rate of pay has been established. The scales of pensions for the widows, and of compassionate allowances for the children, of Chief and Head Schoolmasters have also been improved.

The rapid growth of the B Division of the Royal Fleet Reserve, composed of men who have left the active service at the end of their first engagement of 12 years or earlier, has given rise to a large demand for places to be found for its members in civil employment. A three-year agreement has been entered into with the Navy Employment Agency, which undertakes, in consideration of a grant of £1,000 per annum, the organisation of special "labour exchange" work on behalf of Fleet Reserve men all over the country.

It is proposed during the coming financial year to give effect as far as may be possible to the policy of substituting the punishment of detention for that of imprisonment for offences against naval discipline which was embodied in the short Act of last Session entitled the Naval Discipline Act, 1909. Seamen and Marines borne on ship's books, sentenced to detention, will be regarded as "undergoing detention," and the places in which they will be confined will be termed "detention quarters," the stigma attaching to imprisonment being thus avoided. The system of punishment to be adopted in naval detention quarters will be in harmony with that which has been in force in recent years in military detention barracks.

His Majesty the King has been pleased to approve the grant of a decoration and medal to officers and men of the Royal Naval Reserve and the Royal Naval Volunteer Reserve as a reward for good and long service. The award of the decoration has been made retrospective, and a large number of officers of the Royal Naval Reserve are qualified, and have received the decoration. The Royal Naval Volunteer Reserve being of more recent creation, only officers with previous service in other branches of H.M. Forces will for some years to come have fulfilled the qualifying conditions.

His Majesty the King has been pleased to approve the grant of the Polar Medal and a clasp to the members of Sir Ernest Shackleton's antarctic expedition, and the presentation of the medals was made by His Majesty in December last.

The men of the first batch of Australian and New Zealand ratings who were sent to England in the spring of 1907 to be trained for promotion to higher ratings were reviewed by the King on the 26th of July, 1909. The majority of the men subsequently returned to Australia in H.M.S. *Terrible* in August, but a few remained, under special arrangements with the Commonwealth and New Zealand Governments, to complete their course of instruction. Very satisfactory reports were received of them from their commanding officers.

The recommendations of the inter-departmental conference on the Coast Guard have only been partially carried out and, as announced in

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Parliament, the force is being retained round the coast on the establishment provided for in the estimates for 1909-10, care being taken to continue assistance where hitherto given at all places where lifeboats and life-saving apparatus have been established. The establishment of the Coast Guard as so fixed is 3,100.

Works.

This year has seen the completion of a number of the large engineering works begun under the Naval Works Loan Acts, including the dockyard extension and large dock at Simon's Bay, the Colombo Dock, the dockyard extension and large dock at Hong Kong, the Malta breakwaters, and the enclosure of the Admiralty Harbour at Dover; the latter was formally opened with a public ceremony in October by Admiral His Royal Highness the Prince of Wales, K.G.

In connection with the Portsmouth lock scheme, for which the contract was let in July, 1908, it has now been decided, as I have stated earlier, to build adjacent to the lock a new dock capable of taking vessels of the largest size.

Sea Fisheries.

The general financial recommendations of the inter-departmental conference have not been approved, but the action of the Admiralty as regards the provision of cruisers is being directed on the main lines laid down in the report. The responsibility of the Admiralty is defined as regards the duties devolving upon H.M. ships and the fishery protection vessels maintained by the local authorities.

Maritime Conference.

Since the London Declaration was signed an inter-departmental committee presided over by the Earl of Desart—the King's Proctor—has revised the Naval Prize Manual with a view to its issue to the Fleet when the legislative and other action necessary to give effect to the Declaration has been completed. An inter-departmental committee under the presidency of Lord Gorell—late President of the Admiralty Division of the High Court—is now considering the revision of Naval Prize Court procedure, and also the amendments which may be desirable in the Naval Prize Acts.

Imperial Conference.

Certain offers of assistance to meet the charges of the Imperial Navy having been made by the Dominion Governments last spring, a Conference took place in London in August, at which all the self-governing Dominions were represented. The conclusions of the Conference have been published in a Parliamentary Paper—Cd. 4948, November, 1909. Canada and Australia propose to form navies of their own, but New Zealand has decided to give an armoured ship to the Royal Navy as well as to continue its monetary contribution as before. The Australian and New Zealand Governments have passed Acts authorising the construction of two armoured cruisers of the *Indefatigable* type, tenders for which are now under consideration, and in the case of the Commonwealth three protected cruisers, destroyers and submarines. The Canadian Government

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has purchased the *Rainbow*, a second-class cruiser, for use as a training ship, and is negotiating for the purchase of the first-class cruiser *Niobe*. It is understood that protected cruisers are also to be constructed in Canada.

Distribution of the Fleet.

A further stage in the gradual development of the organisation of the Fleet in Home Waters, begun in 1905 with the introduction of the Home Ports divisions of ships manned with nucleus crews, and extended at the end of 1906 by the creation of the Home Fleet alongside of the already existing Channel and Atlantic Fleets, was reached at the beginning of the present financial year, as announced in my last statement. The Channel Fleet has been absorbed into the Home Fleet, which has now been organised in four main divisions—the first two fully manned, the third manned with nucleus crews, and the fourth with reduced nucleus crews. The programme sketched out in my last statement has been generally adhered to: as new battleships have been completed they have been placed in commission in the First Division of the Home Fleet. Similarly, the new ocean-going destroyers on delivery from the contractors have been attached to the First Flotilla, which will shortly contain 12 vessels of this class.

The Home Fleet has carried out a normal routine of cruises and exercises during the past year. The First and Second Divisions have been in company for the greater part of the year, whether in Scottish waters, at Portland, or elsewhere, but they are separated from time to time for convenience of training, and at the present time, with the courteous permission of the Spanish Government, the Second Division (with the Second Cruiser Squadron) is off the coast of Spain in the neighbourhood of Vigo and Arosa Bay. The Atlantic Fleet joined the Home Fleet for exercises in the spring as well as for the summer manœuvres.

The Third or nucleus crew Division of the Home Fleet, comprising three sub-divisions based on the three principal Home Ports, has been assembled and worked as a fleet under the Vice-Admiral Commanding on several occasions. It is at present being so exercised in the Channel. The continuance of its high standard of gunnery has been gratifying.

The Fleet exercises took place during the latter half of June and the beginning of July off the Atlantic coasts of the United Kingdom, the Mediterranean Fleet taking part. Torpedo craft exercises took place concurrently in the North Sea. A collision in which the *Sappho* was badly damaged gave an interesting opportunity to one of the dockyards to show the celerity in repairing work which might be expected under war conditions.

In order to take part in the celebrations in commemoration of the Hudson Tercentenary and the Fulton Centenary, Admiral of the Fleet the Right Hon. Sir Edward Seymour, G.C.B., O.M., G.C.V.O., visited New York as the special representative of the British Navy in H.M.S. *Inflexible*, and in command of a squadron composed of that ship and of the *Argyll*, *Drake*, and *Duke of Edinburgh*, from the Fifth Cruiser Squadron, under Rear-Admiral F. T. Hamilton. Sir Edward Seymour

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earned the warm commendation of His Majesty's Government for the ability and judgment with which he carried out the mission. The occasion was remarkable in that no previous Admiral of the Fleet had hoisted his flag at sea since the reign of George III.

It has been decided that Admiral His Royal Highness the Prince of Wales, K.G., will hoist his standard in the *Balmoral Castle* of the Union-Castle Line, which is to be commissioned as one of His Majesty's ships for the occasion, in order to pay a State visit to South Africa for the opening of the first Union Parliament. His Royal Highness will be escorted by a first-class armoured cruiser.

In January, 1910, the Board of Admiralty were deprived, to their deep regret, of the invaluable assistance of Admiral of the Fleet Lord Fisher of Kilverstone, G.C.B., O.M., G.C.V.O., who had asked to be relieved from his post on reaching the age of 69. Lord Fisher, in addition to most distinguished service as a sea officer, has had a career of unexampled success in high administrative office at the Admiralty, first as Director of Naval Ordnance, afterwards as Third Sea Lord and Controller, then as Second Sea Lord, and finally as First Sea Lord. The measures which are associated with his name and have been adopted by several successive Governments, will prove of far-reaching and lasting benefit to the Naval service and the country.

I append the usual record of work done by the Department during the past year.

Royal Fleet Reserve.

The numbers of the Royal Fleet Reserve have risen during the year from 19,613 to 20,813, the distribution on the 31st December, 1909, being as follows:—

	Class A.	Class B.	Total.
Seamen, etc.	3,359	7,695	11,054
Stokers	1,486	3,212	4,698
Marines	1,715	3,346	5,061
	6,560	14,253	20,813

It has been decided that in future all men in the Reserve shall be required to perform seven days' drill in each calendar year, the option of performing a double drill every alternate year being withdrawn. The new rule has been made applicable immediately to all entries in the Reserve, and will apply to men already serving after the 31st December, 1910.

Royal Marines.

The numbers borne on 31st March, 1910, will be about 16,300. There will also be about 1,300 Royal Marines for Naval Bands.

The division of the officers of Royal Marines into two separate lists, Royal Marine Artillery and Royal Marine Light Infantry, in the year

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1863, has resulted in considerable inequality in the rates of promotion to the various ranks. To obviate the inconveniences caused by such inequality when officers are so closely connected in their duties, an Order-in-Council has been issued directing that when officers of the Royal Marine Artillery and Royal Marine Light Infantry are serving together in the performance of duties peculiar to the corps, Brevet rank granted for length of service shall take rank and precedence with corresponding substantive rank according to the date on which they were conferred.

The extension of employment of Royal Marine Officers in the Fleet in various naval duties as well as in Wireless Telegraphy, etc., has made good progress; such extra work is generally appreciated by the officers themselves, and has considerably enhanced their value to the Navy.

The qualification of Trained Men in Gunnery had become so general among the non-commissioned officers and men of the Royal Marine Light Infantry that the distinctive non-substantive rating (T.M.) for Royal Marine Light Infantry has been abolished. All efficient Royal Marines are expected to maintain that standard.

The system of technical training for men about to leave the corps to prepare them for civil life, which was inaugurated at Eastney in 1908, continues to be productive of excellent results in obtaining highly paid employment for late Royal Marines as chauffeurs, electricians, and in ordinary trades. Under this system, at very little expense to the Crown, the men trained are fitted to cope with the difficulties of obtaining satisfactory employment after leaving the service. The same system is to a lesser extent carried out at the other Divisions.

Coast Guard.

The total numbers of Stations and Detachments at present manned in peace is 600.

The numbers borne on 1st January, 1910, were:—

District Captains, District Paymasters and Staff	35
Divisional Officers	81
Chief Officers and Men	3,158
	3,274

The closing of redundant stations ceased after 15th May, 1909, as all stations now manned are required for Naval or Revenue duties, or to assist in the life-saving services.

New Wireless Telegraph Stations have been completed during 1909 at Cleethorpes, Aberdeen, Ipswich, and Pembroke, and the station at Rosyth is nearing completion.

The men of the Signal Section were embarked for 28 days' training during the year.

The introduction of a higher scale of extra pay for Coast Guard Wireless Telegraph ratings and the grant of other advantages to Wireless Telegraph ratings as regards promotion, have made the Wireless Telegraph Section more popular in the Coast Guard, and both officers and men take keen interest in their work.

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Royal Naval Reserve.

Of the total numbers of 19,790 borne on 1st January, 12,282 had been transferred to the new system of training.

The strength of the Royal Naval Reserve (Home) on 1st December 1909, was :—

Executive Officers	1,389
Commissioned Engineer Officers	240
Warrant Engineers	102
Engine-room Artificers	577
Seaman ratings	12,961
Stoker ratings	5,579

Of the above executive officers 515 have undergone 12 months' training in the fleet and are in receipt of training fees. In addition to these, 66 are now undergoing this training.

The following numbers have performed courses of instruction, drill, and training during the 12 months ended 30th November, 1909 :—

	Short Courses.		New System.		Old System.
	Gunnery and Torpedo.	Signal.	Three Months' Training Afloat.	Annual or Biennial Training.	Drill.
Executive Officers	75	18	—	223	404
Seaman Ratings ...	—	—	389	2,278	6,988
Stoker Ratings ...	—	—	445	1,637	1,074

The training in ships of the Home Fleet under the new system is very valuable, and will render the Royal Naval Reserve Force an efficient portion of the naval personnel.

The number of officers serving in the gunnery and torpedo establishments at the two Home Ports, and of officers and men undergoing periodical training in ships of the 3rd Division of the Home Fleet, increases as the new system becomes more generally adopted.

Approval has recently been given to an amendment of the regulations governing the promotion of Sub-Lieutenants to the rank of Lieutenant, R.N.R. The main principle adopted in these new regulations is that all Sub-Lieutenants who have satisfactorily undergone courses and 12 months' naval training will, after attaining two years' seniority in that rank, be eligible for promotion to Lieutenant, without regard to any fixed requirements of service in the Mercantile Marine. It is thought that this new ruling will operate more satisfactorily than the previous regulations, and will emphasise the importance of the 12 months' naval training.

Sanction has been given to the payment of war retainers to Engine Room Artificers, R.N.R., when called out on mobilisation, so as to put these ratings on the same footing as seamen and stoker ratings.

Royal Naval Volunteer Reserve.

The strength of the Force in six Divisions, comprising 44 companies, is—

Royal Naval Volunteers.	Establishment.	Strength, 1st January, 1910.
Officers	194	161
Honorary Officers	—	18
Petty Officers and Men	4,318	3,986
Permanent Staff:—		
Officers	7	7
Petty Officers and Men	70	69

Approval has been given during 1909 to the formation of two additional companies, *i.e.*, one at Greenock (Clyde Division), making a total of three companies at that place, and one at Newhaven (Sussex Division), making a total of two companies at that place.

During the current financial year the following numbers have embarked for training afloat for 14 or 28 days in ships of the Home Fleet:—

Officers - - - - - - - - - -	42
Petty Officers and men - - - - -	1,273

A large number of these officers and men were embarked during manœuvres.

Officers and men have also undergone courses at the various schools in gunnery, torpedo, signalling and telegraphy during the year, and the following have passed and obtained certificates:—

—	Gunnery.	Torpedo.	Signalling and Telegraphy.	Total.
Officers	26	4	—	30
Petty Officers and Men ...	45	12	8	65

One Medical Officer has undergone a 14 days' course of instruction at Haslar Hospital.

There are now over 200 qualified R.N.V.R. signalmen.

Up till the beginning of 1909, men who qualified in signals retained their seaman ratings, and had in consequence to spend a considerable portion of their instructional time in gunnery, etc. In order to obviate this, and to allow such men to devote almost the whole of their instructional time to signalling, a separate signal branch of the R.N.V.R. has been established with the same titles, grades, etc., as obtain in the signal branch of the Royal Navy, the higher ratings being obtainable only by passing special examinations in signalling subjects.

This signal branch will be restricted to 15 per cent. of the total strength of the R.N.V.R.: increased efficiency and a general higher standard of signalling are anticipated as a result of the establishment of this special branch.

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The system of issuing free kits to the R.N.V.R. when enrolled and re-enrolled was not found to be wholly satisfactory, and on 1st January, 1910, a new system came into force, whereby the Annual Capitation Grant for the R.N.V.R. will be increased from 35s. to 50s. per annum. Out of that sum the various Divisions will be required to pay for the kits of all men enrolled and re-enrolled.

STATEMENT showing the Net Expenditure from Navy Votes and Loans on account of Naval Services for the Years 1901-2 *to* 1908-9, *together with the Estimates for* 1909-10 *and* 1910-11.

Year.	Total Expenditure from Navy Votes (Net).	Annuity in Repayment of Loans under the Naval Works Acts.	Total Expenditure exclusive of Annuity. [Column (2) deducted from Column (1).]	Expenditure from Loans under Naval Works Acts.	Total of Columns (3) and (4)	Expenditure on New Construction (Vote 8).
	(1)	(2)	(3)	(4)	(5)	(6)
	£	£	£	£	£	£
1901-2 - -	30,981,315	122,255	30,859,060	2,745,176	33,604,236	8,865,080
1902-3 - -	31,003,977	297,895	30,706,082	3,198,017	33,904,099	8,534,917
1903-4 - -	35,709,477	502,010	35,207,467	3,261,083	38,468,550	11,115,733
1904-5 - -	36,859,681	634,238	36,225,443	3,402,575	39,628,018	11,263,019
1905-6 - -	33,151,841	1,015,812	32,136,029	3,313,604	35,449,633	9,688,044
1906-7 - -	31,472,087	1,094,309	30,377,778	2,431,201	32,808,979	8,861,897
1907-8 - -	31,251,156	1,214,403	30,036,753	1,083,663	31,120,416	7,832,589
1908-9 - -	32,181,309	1,264,033	30,917,276	948,262	31,865,538	7,406,930
1909-10 - - (estimated)	35,142,700	1,330,356	33,812,344	—	33,812,344	8,885,194
1900-11 - (estimated)	40,603,700	1,322,752	39,280,948	—	39,280,948	13,279,830

REGINALD MCKENNA.

4th March, 1910.

United States.

Bureau of Steam Engineering. — The Chief of the Bureau of Steam Engineering, Engineer-in-Chief Hutch I. Cone, referring, in his annual report, to the competitive trial of scout cruisers, states that a description of the trial and its results will appear in an appendix to his report. The results of the trial of oil installation on the U.S.S. *Cheyenne* have been very satisfactory, but the necessary air compressors belonging to the system tested are too heavy and too bulky, and, aside from this, the

heavier vessels must be fitted for coal, as well as for oil, which can only be obtained in certain ports. With this latter consideration in view, the bureau is fitting in later vessels only such oil-fuel systems as operate by mechanical atomisation of the fuel under high temperatures, the necessary air for combustion being supplied by the regular forced-draught blowers of the vessel. The development of large gas engine machinery operation in connection with gas producers is rapidly progressing, and is worthy of much more serious investigation and experiment than has yet been given it in our Navy. Authority is asked to purchase and install a producer gas engine plant in one of our colliers.

This report contains an interesting statement of the progress of engineering education in the Navy. At the Academy the line officers are given what is probably the best technical education furnished by any school in the country, based upon the selection and elimination of the student. Thus graduating from the finest school of engineering, the young officers are fitted for the subordinate engineering duties to which they are at first assigned.

Almost every act of the line officer has to do with machinery and with engineering. He lives, as may be said, in a heavily charged engineering atmosphere, and in actually performing his duties in gunnery and in electricity he is constantly directing the operation of complicated machinery and is conversant with the average mechanical problem. By training and by the constant exercise of authority he is an excellent administrator, and by profession he is a directing influence to those under him. Through his general experience, the line officer possesses one qualification which no other officer in another corps or branch of the Service could possibly attain, namely, the knowledge of and appreciation of the aims of his superiors from a military standpoint. In other words, he is vitally interested that his ship shall be in condition to meet any call from his captain or his admiral, with a knowledge of the nature of the requirements born from constant speculation as to what he will do when he becomes captain or admiral.

There are to-day a sufficient number of line officers fully competent to fill the position of senior engineer officer. This fact is evident from the present superior mechanical efficiency of our vessels in commission; from the decreased proportionate amount of the repairs necessary for the maintenance of the ships' machinery in good condition; from the increased proportion of repairs incident to the Service that are being performed by the ships' force, and this with increased strains on the machinery due to their now being more frequently operated at or near their designed power than has formerly been the case. The credit for this performance belongs in various quarters. Great credit is due the enlisted *personnel*, and in particular to those of them that have evidenced such energy and ability as to secure appointment as warrant officers. Obviously, however, the main credit is due to those responsible officers who have had charge of the machinery and to their immediate official subordinates. These have proved their worth, and they have justified the legislation of 1899 that made all engineers line officers and that made all line officers engineers.

There is one branch of engineering that this excellent general education does not fully qualify all naval officers to perform: The important work

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of designing the machinery of our vessels. The successful cruise of the Atlantic Fleet around the world is as much a tribute to the excellent work of the older engineers who designed the machinery of that fleet as to the efficiency of those that handled the machinery. It is essential to future success that we have competent, expert designing engineers to do the work that the older engineers so efficiently performed in the past. To secure these, ten officers have been selected from applicants for this duty for detail to the School of Marine Engineering, at Annapolis. These officers have had at least three years' sea service, and have been selected according to their evidenced capacity. Provision is made for the selection of officers for designing duty from among those specially well qualified by education, experience, and inclination, pending the time when graduates of the school will be eligible for such detail under the terms of the order.

General interest in engineering, acting, as it does, to assist in eliminating faults in the Navy, is of the greatest value, and the steaming competition is therefore considered to be a very great assistance to the Bureau of Steam Engineering, as tending to greatly increase the general character of engineering knowledge possessed by the average officer throughout the Service. Competition will also save the Government much money, and the bureau's efforts are directed toward increased economy.—

MILITARY NOTES.

Home. The following are the principal appointments which have been made:—Colonels—H. De B. De Lisle, C.B., D.S.O., to be General Staff Officer, 1st Grade, 2nd Division (Aldershot Command); W. G. Gwatkin to be General Staff Officer, 1st Grade, 4th Division (Eastern Command).

Army Medical Service.—Surgeon-General W. L. Gubbins, C.B., M.V.O., M.B., K.H.S., to be Director-General, and to rank as Lieutenant-General. Colonel—W. Babtie, V.C., C.M.G., M.B., to be Deputy Director-General, with temporary rank as Surgeon-General.

Memorandum of the Secretary of State Relating to the Army Estimates for 1910-11.—

TOTAL ESTIMATES.

The Army Estimates for 1910-11 show a total of £27,760,000, which is a return to the figure of 1907-08, and an increase of £325,000 on that of 1909-10. This increase is due to the striking success of the efforts made by the County Associations throughout Great Britain to fill up the ranks of the Territorial units.

The growth of the Territorial Force is not, indeed, the only important increase for which provision has had to be made; there have been some necessary additions to the Regular Establishment (*see* below); the exhaustion of surplus stocks increases the Clothing Vote by £141,000; and the continued growth of the Pension Votes for officers and men accounts

for a further £49,000; but I have been able to secure sufficient savings in other directions to cover the cost of these increases. I may further observe that the year 1911-12 will see a diminution of charge by the extinction of the Barrack Loan Annuities of £304,000.

ESTABLISHMENTS AND STRENGTH OF THE REGULAR ARMY.

There is an increase of 1,000 men in the total Establishment (Vote A), of which half represents the strengthening of certain weak points in the Field Army, and half a temporary addition to cover the special needs of certain Infantry regiments.

A reorganization of Cavalry Establishments was carried out in 1909, under which 6 Cavalry depôts are created, to which the 14 regiments of the Line abroad and the 14 at home are affiliated in pairs. This will place the Cavalry, for the first time, on a sound footing in such matters as training of recruits, storage of reservists' kits, and mobilisation arrangements generally. This reorganisation made practically no difference in the total Cavalry Establishment as shown in the Estimates of 1909-10, the depôt numbers being taken from the reserve squadrons of the regiments.

The Cavalry manœuvres of last autumn, however, showed that the regiments at home, as they stand in peace, are considerably below the War Establishment in fully-trained men and horses. Complete arrangements exist for adding the necessary numbers on mobilization; but in view of the heavy strain that would fall upon the Cavalry Division at the very outset of active operations, it is necessary to restrict to a minimum the number of reservists and fresh horses to be incorporated in the ranks on mobilization. For this purpose an addition of 18 men and 36 horses is made to the Peace Establishment of each regiment of the Cavalry of the Line. Further progress will also be made with the scheme successfully initiated last year, by which a certain number of horses, after training in the ranks of the Cavalry, are "boarded out" with farmers and others who undertake to produce them in good condition when required for manœuvres or for war.

The other chief addition to Regular Establishments is for the purpose of improving the communications between the different portions of the Army in the field which under modern conditions are liable to be widely separated. For this purpose, sufficient officers and men are added to the Royal Engineers to complete the second three Divisional Telegraph companies to the same peace strength as the first three, and 78 men are added to the Infantry Establishment for special training to form, with the Telegraph companies, the necessary communication units in manœuvres and on mobilization.

The temporary addition arises from the substitution, in enlistments made for some years beginning in 1902, of a hard-and-fast period of 8 years with the Colours (by extension from 3), for the elastic period of 7 years with part of an eighth year if serving abroad. Men now in India, enlisted in the summer of 1902, must be brought home during the present trooping season in order that they may be passed to the Reserve at the proper time. While waiting for transfer, they cumber the ranks of their Home battalions and prevent the enlistment of the recruits required for the drafts of 1911 and 1912. To enable the necessary recruits

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to be taken I am compelled to add 500 men to Vote A, as extra numbers, at considerable cost—a very good illustration of the superiority of the elastic term of Colour service to which we reverted in 1906.

The depletion in the ranks of the Army due to the abnormal efflux of men to the Reserve is now past; and my chief difficulty as regards recruiting in the past year has been to avoid an excess on the numbers of men voted by Parliament.

Position on Mobilization.

The additions above referred to complete the organization of the Field Force of a Cavalry Division and six Divisions of all Arms for service abroad. The Howitzers and the new accoutrements now under manufacture complete its equipment. For the first time, I am in a position to state that the whole of the personnel required for the Artillery is trained and available. The fully-trained medical personnel required is also all available, together with a large proportion of the partly-trained men. In the Army Service Corps there is still a deficiency in the personnel of one Division, but it is anticipated that this will to a large extent disappear by the end of the year.

TERRITORIAL FORCE.

The progress made by the Territorial Force during the past year has been very satisfactory. Thanks to the admirable work performed by the County Associations and to the effects of a sound military organization, marked improvement has been visible in numbers, in efficiency and in cohesion.

Out of an establishment of 11,218 officers, and 301,272 non-commissioned officers and men, the Territorial Force on the 1st January, 1910, had reached a strength of 9,701 officers and 262,036 non-commissioned officers and men, which was an increase of 64,105 of all ranks over the strength of the Force on the 1st January, 1909. Of the 892 units of which the Territorial Force is composed, all except three have now secured the strength (a minimum of 30 per cent. of establishment), entitling them to official "recognition."

8,181 officers and 240,056 non-commissioned officers and men attended camp, and of these 6,866 officers and 163,045 other ranks attended for 15 days or over.

The reports of General Officers Commanding on the training indicate a general improvement in the efficiency of the Force, notwithstanding the large number of recruits that attended camp.

Considerable progress has been made with the arming and equipping of the Force. The whole of the Horse and Field Artillery, with the exception of the Howitzer Brigades, has now been equipped with the converted 15-pr. gun. In the case of the Horse Artillery this gun is about to be replaced by the Ehrhardt 15-pr. Q.F. gun, which is considerably lighter and better adapted for Horse Artillery. The armament of the Howitzer Brigades cannot be completed until the new pattern howitzers, now under manufacture, have been issued to the Regulars, but in the meanwhile a certain number of howitzers have been issued to every Territorial Howitzer Brigade.

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The re-arming of the Infantry with the charger-loading rifle was commenced in September, 1909, and will be completed during the coming financial year.

Good progress is being made with the provision of the technical equipment of the Field companies and Telegraph companies of the Royal Engineers, the medical and surgical equipment of the field ambulances, and the peace training equipment for all other units of the Territorial Force whose technical requirements have not yet been supplied.

On mobilization the Force will require a large amount of equipment, over and above what is provided for peace training. Lists of the articles required have been drawn up and are in course of publication in the Equipment Regulations. The requirements are divided into two classes, viz., those which can be supplied through ordinary trade sources, which the Associations are asked to provide; and those of a more technical nature, which will have to be supplied by the Army Ordnance Department. Money is taken in these Estimates to complete the entire provision of the latter.

A great deal of heavy work has been accomplished by County Associations and by the military authorities concerned in dealing with the provision of accommodation and ranges for the Territorial Force. A large number of schemes have been finally sanctioned for execution, and many more have been far advanced towards final approval; and I hope that by the beginning of the coming financial year schemes for the provision of practically all the first equipment of necessary buildings for units and detachments will have been taken in hand.

The provision of additional rifle ranges is a source of considerable difficulty, but no efforts are being spared. Satisfactory progress is also being made towards the acquisition of a new artillery range on Salisbury Plain.

Schemes for the formation of a Territorial Reserve, a Technical Reserve, and a Veterans' Reserve, and for the organization of Cadet units, have been referred to Associations, and their views on these proposals have been obtained. Regulations embodying these important new developments are being drawn up. I hope that a large proportion of the men leaving the Force in the coming year will join the Territorial Reserve, and have made provision for them to attend camp under certain conditions.

Detailed consideration has been given to the question of how best to fill those important positions in the Force which are assigned to Regular officers and non-commissioned officers, and schemes for improving the present method are under consideration.

Voluntary Aid Detachments to complete the medical organization for Home defence are now in process of formation throughout the country, in accordance with a scheme that was issued to County Associations in August, 1909.

In my Memorandum on the Estimates of 1909-10, I stated that from the information then at my disposal I did not think it necessary to provide for any considerable revision of the amounts of the various grants made from Army funds to the County Associations for the administrative expenditure of the Force. I am glad to be able to say that the results of the first year's accounts confirm that view. The

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valuable reports received from the various firms of Chartered Accountants who have audited the Associations' accounts show that the expenditure of the year has on the whole been well and regularly conducted, though not unnaturally at the outset there have been points here and there requiring amendment. There were abnormal features in the finance of the first year, some tending to lighten expenditure and some tending in the reverse direction; but it is at any rate satisfactory to find that the Associations as a whole wound up the year with a combined net credit balance not far short of £200,000, after allowing for liabilities and placing some £42,000 to sinking fund in respect of future renewals of clothing and equipment.

It is, however, undeniable that the amount of clerical work done in Association and Regimental offices, increased as it will be by the various schemes in hand in connection with Horses, Reserves, Cadets, &c., is larger than was anticipated when the Establishment grants were fixed; and I contemplate making an addition of substantial amount to the income of Associations to enable them to find the necessary assistance.

Officers' Training Corps.

The Officers' Training Corps, instituted in 1908 as the outcome of the recommendations of Sir E. Ward's Committee on the Provision of Officers, has made great progress during the past year, and bids fair to take an important share in supplying the Special Reserve and Territorial Force with officers. It numbers at present some 3,500 senior (University) cadets in 16 contingents, and nearly 16,000 junior (Public School) cadets in 139 contingents. During the coming year I anticipate the formation of a few more contingents, bringing the total numbers up to, perhaps, 21,000; and then growth will cease only because nearly all the universities, and the great majority of the suitable public schools, will be included in the scheme.

Much valuable training was accomplished last year, the Artillery (senior) contingents attending Regular practice camps, while the Cavalry Cadets from Oxford and Cambridge held a special camp in order to join in the training of the Cavalry Division. In the Junior Division the officers (masters of the various schools) have displayed the greatest possible keenness, and in the coming year extended facilities will be given to them to advance their military knowledge in order that they may be able to train the cadets on thoroughly sound lines.

It is early to look for fruit from a tree so recently planted, but the indications are already of great promise. 86 cadets have already obtained Certificate B, which exempts from eight months of the year's probationary training prescribed for a Special Reserve officer, and nearly 1,900 have taken Certificate A, which exempts from four months. About 50 ex-cadets have taken commissions in the Special Reserve and Territorial Force, and I look with considerable confidence to obtaining from this source a steadily-increasing proportion of the supplementary officers for whom on mobilization there will be so urgent a demand.

Horses.

Besides the measures taken, as mentioned above, to provide the Cavalry with a full complement of trained horses on the outbreak of

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war, the important task of organizing the horse supply of the country to meet the needs of both Regular and Territorial Forces in war has been taken in hand. For its successful discharge, this task requires the avoidance of all overlapping between Regular and Territorial organizations, complete decentralization, and intimate knowledge of local resources and conditions. On all these grounds it appeared to me best and most consonant with the spirit of British local administration, that the work should be done by a combination of the Police authority and the County Association, each in its own well-defined sphere, the share of the Regular Army being limited to taking over, at given places and in given numbers, the horses it requires in the event of hostilities. The Police authorities have almost finished a complete census of the horses in Great Britain; and under the scheme I hope to see adopted the War Office, as soon as it has considered the total results, will assign to each county the quotas to be provided at once on mobilization and thereafter as drafts; and the County Association, working on the Police census as a basis, will be asked to inspect and classify a sufficient proportion of the horses to provide (with an adequate margin) the required quotas, and at the same time to organize the necessary machinery for immediate collection on the order to mobilize. The number of collectors, the area each can cover within the time available, the selection of the horses to be taken in such a way as to be least onerous to the civil population—all these are matters which will be left to those who best know the local conditions.

The success of an experiment made last year by the Devonshire County Association gives good grounds for believing that, in coping with this all-important duty, the Associations will receive invaluable assistance from men with full knowledge of the local circumstances, and that they will bring it to a successful conclusion. Under these conditions, I do not anticipate that the expenditure involved will be large, though in some exceptional areas it may well be heavier than elsewhere. Some further information on this point will no doubt be afforded by the replies of the Associations to the circular issued in January, explaining the general policy and inviting their observations; but I recognise that, until the quotas to be found by each county have been fixed and considered in comparison with the total horse-population shown by the Police census, it will not be possible accurately to gauge the severity of the task. I am disposed to think that the proportion of the horses in any given district to be taken on mobilization will be found not to be excessively high.

Ordnance Services.

Orders for the manufacture of all the quick-firing field howitzers for the equipment of the Expeditionary Force were placed last year, but there have been some difficulties and delays in manufacture and deliveries have not been so rapid as was anticipated. I hope, however, that manufacture of the equipment for the howitzer brigades will be completed during next financial year and that sufficient progress will be made to enable issues to commence in June and some practice from these weapons to be made in the coming season.

Experiments with small-arm bullets have resulted in the selection of a new pattern which promises greatly improved results, and manufacture is now in progress for an extended trial by the troops.

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A good deal of progress has been made during the past year in Aeronautics. The Balloon Factory at Aldershot has been placed under the management of a specially selected expert and staff, and systematic investigations of many points relating to the design and manufacture of airships will be carried out as soon as the extension of the factory and provision of the necessary plant have been completed. The design of a dirigible balloon to be manufactured at the factory is under consideration. The envelope purchased last year has been fitted with car and engine, and is now undergoing trials from which I hope much valuable information will be gained.

A new shed, capable of holding a large airship, is nearing completion at Aldershot. A second large shed, which has been erected at Wormwood Scrubbs by private enterprise, will also come into the possession of the department during the year.

The Clément dirigible balloon which was to come to this country under arrangements made by certain Members of Parliament in 1909, has not yet started, but is believed to be now ready for preliminary trials in France. The dirigible balloon ordered by the *Morning Post* Fund from M. Lebaudy, is well advanced, and due for completion at the end of May; so that in the near future two large dirigibles, provided they fulfil the conditions laid down, should be available for the use of the Army.

Training and Manœuvres.

The Army Manœuvres held in 1909 again demonstrated the great value of such exercises for the general efficiency of the Army. In 1910 it is proposed, in addition to the ordinary annual training of the troops in their several Commands, to hold Army Manœuvres specially designed to test practically the principles governing the maintenance of an army in the field, embodied in the new Field Service Regulations recently issued. For this purpose, a complete division will be raised to its full war establishment, either by inviting reservists to come up voluntarily for a short period of training, or by temporarily filling up the ranks of the selected division by men from the peace establishment of other units. It is also proposed, by means of other exercises, to test the degree of efficiency attained by the Territorial Force with special reference to its functions in repelling, in conjunction with Regular troops, attacks directed against coast defences.

For these purposes an additional sum of £100,000 has been provided.

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Bridging Materials for Cavalry.—At the Imperial Manœuvres last year in Moravia, two bridging systems for cavalry were experimented with, of which some interesting details have been given in the *Allgemeine Schweizerische Militär-Zeitschrift*. The Kerbert system is principally intended for the construction of fixed bridges and foot-bridges. The pontoons are in two halves, made of aluminium and steel, with the material for the roadway all ready prepared. They allow of throwing a bridge or foot-bridge, 30 metres (98 feet) long, but their length requires proportionately large wagons, which interferes with the mobility of this *matériel*.

The Vall system (designed by a Captain of Cavalry and a Captain of Engineers), on the other hand, is light and mobile. It is composed

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of aluminium pontoons, which can be carried on the ordinary horse artillery wagons. It will only allow of a 16 metre (52 feet) bridge or a 20 metre (65 feet) foot-bridge, but it is adapted for the construction of flying bridges, by means of which streams 100 metres (328 feet) wide can be crossed.—*Revue de Cavalerie.*

The New Mountain Howitzer.—The rearmament of the mountain artillery, which commenced with the introduction of the 7-cm. (2·7-inch) gun, is being followed up at the present time by the introduction of a mountain howitzer, to be known as the 10-cm. (3·9-inch) M. 8 mountain howitzer, which is taking the place of the 9-cm. (3·5-inch) M. 75 gun and the 10-cm. (3·9-inch) M. 99 field howitzer. It is mounted on a recoil carriage, is protected by a shield in two pieces and dismounted for transport; the span between the wheels is 90 cm. (35·4 inches). The gun itself and the transporting carriage are turned out at the Vienna Gun Manufactory; the mounting, on the other hand, is the work of the Skoda Manufactory, Pilsen. Its initial velocity and power are equal to those of the M. 99 howitzer, for which it is being substituted; but in rapidity of fire it is much superior. Its characteristic consists in its being dismountable into three parts, each of which weighs about 600 kg. (1,322 lbs.), and is drawn by two horses tandem.

The normal order of march of the battery is as follows:—

In front, the four howitzers, with two pack animals for each gun for ammunition, followed by two sections consisting of six more pack animals with ammunition for each gun, with, in addition, the supply and baggage trains.

Each of the guns moves as follows: first, the lower part of the carriage attached to a gun limber; then the two-wheel trolley carrying the cradle and upper part of the carriage; next the two-wheel trolley carrying the gun itself, with, lastly, two pack horses with ammunition and one carrying a telephone apparatus, the whole making a demi-section commanded by the captain of the gun with eight gunners and nine drivers. The remounting and placing in position are carried out as much as possible under shelter from the sight and fire of the enemy; the captain of the gun, once his position chosen, gives his orders by gesture. At the signal the trolley which carries the cradle moves up as close as possible alongside the carriage; four men lift it from the truck, which moves off, and it is then placed on the carriage and secured by bolts; then the gun is similarly brought up, is lifted by six men by means of handspikes, and placed in the cradle, after which the two halves of the shield are then fixed, the gun brought to its position for firing, the trail-spade firmly driven into the ground, and fire can be opened.

At particularly difficult points each of the three parts of the howitzer can be placed on slides, the wheels being taken off and the axles secured on top. The body of the truck thus rests directly on the ground and on its slides.

As regards the marching capacity of one of these howitzer batteries, approximately it is considered that an hour longer is required for an ascent of 200 metres or a descent of 300 metres than on level ground; if the condition of the road is very bad, these figures must be reduced to 100 and 200 metres respectively. It is evident, however, that

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the difference of altitude obtained in a day depends on a variety of circumstances, chief among which must be considered the state of training of the men and the endurance of the horses; but in any case, an ascent of 900 metres in one day is considered very satisfactory.

According to the *Neue Freie Presse*, the XVth Corps in Bosnia and the XVIth in the Herzegovina and Dalmatia, possess at the present time 25 gun batteries and 6 howitzers, grouped in three regiments; the XIVth in the Tyrol counts 11 gun and 4 howitzer batteries. The introduction of the new howitzers in the mountain artillery regiments of the XVth and XVIth Corps has opened the way to the creation of several groups of mountain howitzers. In the Tyrol at Brixen, one of these howitzer divisions is already attached to the 2nd Regiment of mountain artillery, and a howitzer battery to the 1st Regiment at Trent and 3rd at Villach respectively. In these two last regiments these batteries will soon be doubled, and will then be formed into groups, a system of formation which the nature of the ground in the high mountains renders indispensable for the success of the artillery, as owing to the deep gorges and numerous valley-like depressions horizontal fire can produce hardly any effects.—*Revue Militaire Suisse.*

Germany.

Innovations in the Infantry Drill Regulations.—(Translation of an article appearing in the *Internationale Revue über die gesamten Armeen und Flotten* of November, 1909).—The result of the views expressed up to the 1st January, 1909, with regard to alterations in the 1906 Infantry Drill Regulations by Generals commanding Army Corps, is now to be seen in the shape of 78 amendments, which have just been issued.

In their essential features these amendments merely amplify the precepts of the drill book; they remove inconsistencies, which were first noticed when those regulations were carried into practice; and they further the general desire that the language used in all drill regulations should be simplified.

There are evidently two schools of thought as to the value of the part dealing with the formal training of the troops. One school, whilst acknowledging the importance of parade exercises for instruction in and maintenance of discipline, is convinced that the same result can be obtained by battle drill, and it holds the opinion that only the practice of such exercises and formations as would be used on active service is justifiable. As opposed to this, advocates of the other school recognise the necessity for battle training under active service conditions, but consider that it was the strict discipline of steady drill which won battles in the past, and which will do so in the future.

In paragraph 19, the regulations lay stress on the importance of the Drill Step for purposes of discipline and accurate dressing. "It is used in close order formations and at reviews."

From paragraph 509 it is apparent that parties paying compliments march in step as formerly.

To prevent undue stamping on the ground when practising the drill step, the following sentence has been inserted in paragraph 19, between sub-sections 3 and 4. "It is wrong to raise the foot which is being carried to the front, higher than is necessary to take a correct pace, or to place it on the ground with unnecessary force."

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In accordance with the general desire, the command "Load for firing" (*Zum Schuss laden*) has been abolished. This command meant loading, and at the same time moving the feet into a position of readiness for firing, under the supposition that firing took place immediately after loading. This was a difficult exercise to carry out, and was only rarely used in practice.

Now it is taken for granted that men always enter into action with their rifles loaded, and that the time which elapses between the loading motions and the adoption of a firing position need not be taken into consideration.

The command "Load and set the safety catch" (*Laden und Sichern*) may be carried out either standing, or kneeling, or while standing at ease, in either close or open order; when lying it may only be carried out in open order. When this command is given on the move, action must be taken according to circumstances.

The separate loading motions are carried out in quick succession, every man loading in his own time, without undue haste.

What an improvement on former days, when loading was practised by numbers.

The amendment to paragraph 48 is a very important one. It arises from the shortness of our rifle, and reads as follows: "When firing in close order, the front rank fires kneeling, the rear rank standing."

In a company, the formation of column of half-sections no longer exists; the half-section, however, remains as before.

Company column is now formed direct from column of sections, by groups being ordered to wheel to the right or left. It is no longer necessary to give the command "Company Column," for the section leaders to take up their new positions. This is a simplification which will be welcomed.

The transition from column of sections to company column has been abolished. It was a movement of little use, and only of value for purposes of drill.

When a forward move takes place after diminishing the front, men break step; now this is permitted after increasing the front.

Stepping short, to enable sections in rear to gain their new positions, was formerly strictly forbidden. This is now prescribed. (Paragraph 132.)

In the increasing or diminishing front, the direction is now named to which the movement is to be carried out, *i.e.*, to the right or left, by the centre or to both flanks.

Front is diminished by forming column of sections, or company column, from company in line, and increased by forming back again into line.

Increasing of front to open fire, with or without change of direction, has been re-introduced (paragraph 134).

The regulations for the deployment of skirmishers have been supplemented.

In extensions, the unit of extension is named, and, if necessary, it may be stated how direction is to be maintained.

The most thorough training of group leaders is again insisted on, and reference is made to their being practised in judging distance at long ranges. They must now be able to judge distance accurately and

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rapidly at both long and medium ranges, and they must be trained to command.

In the chapter on "The Fight," an attempt has been made to make "Infantry Drill" agree with other regulation books.

The distance at which the assault is commenced at peace manœuvres has been reduced from 150 metres (165 yards) to 100 metres (110 yards) (paragraph 343, note); as a matter of fact this appears even now too great a distance for the infantry soldier to double, when in marching order.

In the chapter "Attack on an Entrenched Position in the Field," great stress has, of course, been laid on the employment of machine guns, and reference has been made to the necessity for the increased activity of all arms in night operations.

Action in the dark and at night demands special skill and efficiency, which can only be acquired by practice. The training of the soldier in night work must begin when he is a recruit. In night exercises it is essential that progress should be gradual and methodical. These exercises should first take place in semi-darkness on the drill ground or in familiar country, then in unknown country, and finally on very dark nights. Eye and ear must learn to compare the impressions formed by day with those formed at night. The distinguishing of different kinds of sound must be practised. The altered appearance at night of men, objects, and features of the ground must be pointed out and explained. The effects of ground, of distance, of the state of the atmosphere, and of changing light are to be taken into consideration. Finding the way by means of the stars, or of landmarks firmly fixed in the mind by day, must be specially practised.

For movements at night, men are to be taught to keep their wits about them and to maintain silence. All parts of their equipment are to be made fast, or held in such a way that they make no noise.

Even in rough country, men are not to look on the ground. Special practice is required to surmount obstacles silently and successfully in the dark. The construction of entrenchments at night is difficult to carry out quietly, and requires practice.

The Regulations lay down that it is desirable that the assaulting position should be reached under cover of darkness and that the assault from it should be made before daybreak, or after a short fire fight at dawn.

Often it will not be possible during a single night to push forward the infantry to within assaulting distance of the enemy; in this case the troops must entrench themselves in the position in which they are compelled to halt. It may be necessary in certain circumstances to hold on to this position for a considerable time. It is only little by little and, perhaps, only during the following night that it will be possible for different portions of the line to advance and dig themselves in anew.

The determination to push forward at all costs must permeate all ranks of the fighting force.

While digging cover the working parties must be ready at any moment to resume the fight. It is not expedient to use special detachments to cover the working parties. Security should be obtained by patrols.

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The reconnaissance of ground in the immediate proximity of the enemy's position should be carried on continually during the fight and by night. The reconnaissance made in order to ascertain the effect of the attacker's artillery fire, and to locate obstacles in front of the enemy's position, will generally enable a decision to be made as to where the assault should be made.

Machine gun companies are so closely connected with infantry that all officers must have a thorough knowledge of the working of this auxiliary arm and of the principles concerning its employment, and they should be practised in acting in co-operation with machine guns.

The employment of machine gun companies rests with the regimental commander, who may retain at his own disposal all the machine guns or a portion of them, or may allot them to battalions.

Machine guns must assist as much as possible in the attainment of superiority of fire, and, by keeping down the enemy's fire, they must help the attack on the enemy's position. The moral effect of their fire will often facilitate the advance of neighbouring bodies of men. Whether they are to advance to suitable positions at the same time as the skirmishers, or advance under cover of their fire, must depend on circumstances. Considerations of expenditure of ammunition demand that they should only come into action at effective ranges and when a suitable target presents itself. Commanding ground is particularly favourable for machine guns, so that their fire may not be masked by the skirmishers as the latter moved forward. There is no reason, however, why machine guns should not fire through gaps in the advancing lines of skirmishers, without endangering the safety of the latter.

In changes of position the assistance of men from neighbouring bodies of infantry is sometimes necessary in order to take on ammunition.

During the assault machine guns remain in their positions until the enemy's position has been captured. They must continue their fire up to the final stages of the assault, provided they have a clear field of fire.

If during the assault the enemy makes a counter-attack, it is the duty of the skirmishers, supported by the machine guns, to drive it back by fire; the reinforcements in the meantime continue their advance without halting.

If the assault is successful and the enemy is driven back, it is considered a mistake to have men so crowded at this moment that they cannot use their rifles effectively.

Bodies in rear must be halted in sufficient time to admit of their being employed elsewhere, and their leaders, in this case, may often be required to act on their own initiative.

Once the position has been captured, the machine guns must push forward to it as rapidly as possible, ready to guard against a counter-attack or to pursue the enemy with their fire.

As machine guns in position are difficult targets to hit, and can inflict considerable losses on infantry at long ranges, the attacker's artillery and his own machine guns must, in the first instance, be turned on them to keep down their fire.

For infantry fire to be successful against machine guns, the concentrated fire of a large number of rifles and a vast expenditure of ammunition are necessary, unless the range is very short.

United States.

Report on Army Ordnance.—General William Crozier, Chief of Ordnance, U.S.A., in his annual report, says, on the important subject of guns and mortars :—

"During the past few years the department has not been free from the occasional failures of heavy guns, which are believed to have been met with in all services, under powder pressures below those corresponding to the elastic strength of the pieces. A thorough study of the guns that failed and the experience of the department in connection with the manufacture of forgings and their assembling into built-up guns indicate conclusively that the trouble arises not from defect in the design of the cannon, but from either concealed defects in the forgings or the development of thermal or heat cracks. Though many forgings are rejected for streaks, seams or other defects during the manufacture of guns, it is manifestly impossible to examine every portion of each forging, and the danger arises from the defects lying within the finished dimensions of the forging and not apparent on the surface.

"Thermal or heat cracks are due to the high temperature of the powder gases, and increase in depth and number as the number of rounds fired increases, though the increase is more rapid in some guns than in others fired under the same conditions. To the prevalence of these cracks and the accompanying brittle condition of the metal of the surface of the bore the department attaches great importance, and has decided to reline guns as soon as these thermal cracks become very pronounced, instead of waiting until the accuracy life of the gun has been reached due to erosion and wear. All seacoast guns of 6-inch calibre and over, except mortars, manufactured hereafter will be provided with double tubes, so that if, from defective material or thermal cracks, the inner tube gives way, the damage will not extend to the outer tube and the enveloping jacket and hoops. This method of construction will not only permit the restoration of guns the tubes of which give way, at comparatively small cost, but will facilitate the rehabilitation of guns the accuracy life of which has been reached due to erosion and wear of the bore.

"Six 6-inch and four 14-inch guns authorised by Congress at its last session will be of the wire-wound type, and have these double tubes. The 14-inch guns will also differ from those previously manufactured in being 40-calibre instead of 34-calibre guns, which will result in a material increase in the muzzle velocity for the same powder charge and chamber. The increase of length is rendered practicable through the mounting of these guns in turrets, instead of in emplacements in which they were desired to be interchangeable with 12-inch disappearing guns.

"The department expects to have the 14-inch wire-wound gun and one of the 12-inch wire-wound mortars mounted in the proof battery at Sandy Hook Proving Ground within the next few months. The 10-inch and 12-inch guns, model of 1900, have a powder chamber the diameter of which is much greater than that of the bore. This was found to interfere with the proper seating of the projectile when rammed with the rapidity now attained by the detachments in loading. Fixed trays are therefore being fastened to the bottom of the chamber of all these guns, which will overcome the difficulty by maintaining, in ramming, the axis of the projectile more nearly coincident with the axis of the bore. The large chamber is rendered unnecessary through the reduction of the powder charge.

United States.

"In addition to the hand grenade described in my annual report for last year, there has been developed a rifle-shrapnel grenade, designed by Lieut.-Colonel E. B. Babbitt, of this department. The hand grenade can be thrown a distance of about 100 feet when the thrower can assume a standing position, but this distance is materially decreased when it is necessary for the thrower to keep behind the ordinary trench or field-work. The rifle-shrapnel grenade is designed to be fired from the musket carried by the Infantry, thereby materially increasing the zone of effective use of grenades, with the minimum exposure of the soldier. This department is prepared to furnish both the hand and rifle-shrapnel grenades in any reasonable quantity whenever necessary."

Smokeless powder for small arms has been further improved. The shrapnel furnished by the German Ehrhardt Company has proved so satisfactory that a contract for furnishing them has been entered into. The department is satisfied that the broad band is superior to the narrow band, and the projectiles now being procured for the 14-inch guns will have bands one-third the calibre in width, as well as an exterior shape, that will improve the ballistic qualities.

A new design of automatic machine rifle, submitted by Messrs. Benét and Mercié, was exhaustively tested, both at Springfield Armoury and the School of Musketry, and as a result thereof has been adopted. The attack of dirigible balloons and aeroplanes, of which the use in future wars, at least for purposes of observation, is highly probable, is being given consideration. Experiments for the accumulation of data are in progress and a gun and carriage are being designed. The reserve supply of mobile artillery is in a less satisfactory state than that of any other class of fighting material. We have a sufficient number of mountain guns, but the model is not up-to-date.

General Crozier holds that the Government can manufacture cheaper than it can buy, taking everything into the account except the manufacturer's profit. Its interest account is less, and its expense for insurance, depreciation and the higher class of superintendence. These savings more than offset the loss from limitation in hours of work and the liberal holiday allowances of employés. The following table of comparative cost is given :—

	Under contract. Cost, each.	At arsenals. Cost, each.
3-inch field guns	$2,029·80	$1,276·90
3-inch gun carriages, model of 1902 ...	3,398·82	2,156·66
3-inch gun carriages, model of 1902 ...		2,290·02
15-pounder barbette carriages, model of 1903	4,455·54	3,433·84
12-inch disappearing carriages, L.F., model of 1901	1,568·47	605·35
3-inch gun caissons, model of 1902 ...	1,744·10	800·00
3-inch gun limbers, model of 1902 ...	1,586·47	605·35
Ball cartridges, calibre ·30, model of 1906, per thousand	[1]34·84	29·00
Revolver ball cartridges, calibre ·30, per thousand	[2]11·38	10·78

[1] Average under 3 contracts, same date and amount.

[2] Average under 4 contracts, same date and amount.

—*Army and Navy Journal.*

NAVAL AND MILITARY CALENDAR.

MARCH, 1910.

1st (T.) H.M.S. *Vanguard* commissioned at Devonport for Home Fleet.
21st (M.) 2nd Bn. Welsh Regiment arrived at Southampton from Durban.

FOREIGN PERIODICALS.

NAVAL.

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La Vie Maritime. Paris: 10th March, 1910.—"*Apropos* of the Naval Programme." "23,000-Ton Battleships." "The Small Roadstead at Dakar." "The Naval Estimates." "Rear-Admiral Gauchet." "The New Argentine Battleships." 25th March.—"The Distribution of Our Naval Forces." "A Letter of Admiral Bienaimé." "The Naval Schools." "The Departure of Rear-Admiral Arago from Algiers." "Our Cruisers in Argentina." "The Next Naval Manœuvres." "Ships Completing." "Our Naval Officers Abroad."

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GERMANY.—*Marine Rundschau.* Berlin: April, 1910.—"The 70th Birthday of Admiral von Knorr, with Portrait." "The English Expedition to the Scheldt in 1809: Part II." "Annual Report of the Secretary of the U.S. Navy." "On the Organisation of the Admiral Staff and its Relation to the Existing Organisation of the Japanese Navy." "A New System of Naval Tactics." "Exchange of Views on the Article "Young Seamen."."

ITALY.—*Rivista Marittima.* Rome: February, 1910.—"British Naval Schools." "On Laying Mechanism with the Independent Line of Sight." "The Battle of Castro (1580) and the Rules as to Naval Prizes of the Republic of Venice." "On the Calculation of the St. Hilaire Lines."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: January, 1910.—"*Régime* of the Native Proprietary" (*continued*). "Bartholomew Dias: The Discoverer of the Cape of Good Hope." "Colonial Problems" (*continued*). "Genealogical and Biographical *Data* of Some Fayal Families" (*continued*).

Annaes do Club Militar Naval. Lisbon: January, 1910.—"A Small Contribution to the Study of the Tides at Macao with Tables." "Lectures Delivered on Board the Gunboat *Diu*."

SPAIN.—*Revista General de Marina.* Madrid: March, 1910.—"The Reorganisation of the U.S. Navy." "The Efficiency and Internal Organisation of Battleships." "The Brazilian Navy." "In the Heart of the Antarctic." "Construction, Management and Organisation of Modern Ships of War" (*continued*).

UNITED STATES.—*United States Naval Institute Proceedings.* No. 1. Annapolis: March, 1910.—"The Merchant Marine and the Navy." "The Naval Strategy of the Russo-Japanese War." "The Real Status of the Panama Canal as Regards Neutralization." "Naval Training." "A Study of Naval Strategy." "Wasted Horsepower and Economical Trim." "The Development of the Norfolk Navy Yard." "The Naval Academy Practice Cruise: Its Organisation along Modern Lines." "Revolver Shooting." "When was our Navy Founded?"

MILITARY.

AUSTRIA-HUNGARY.—*Danzer's Armee-Zeitung.* Vienna: 3rd March, 1910.—"General Staff Rides." "Adowa and Isandhula." "Trade Intercourse with Servia." "Problems of the Italian Land Fortification." "A Proposal about Albania and the Albanians." 10th March.—"Lueger: An Obituary Notice." "Tisza's Military Policy." "About the Balkans." "Italian Policy." "Italy's Latest Military Programme." 17th March.—"The Indebtedness of Our Officers, its Causes and the Remedy." 24th March.—"The Indebtedness of Our Officers, its Causes and the Remedy" (*continued*). "The Vienna Town Railway and the Army Administration." "France and England." 31st March.—"The Reform of the Army Law." "The Indebtedness of Our Officers, its Causes and the Remedy" (*concluded*). "Balkan Politics."

Streffleurs Militärische Zeitschrift. Vienna: March, 1910.—"Major-General Hazai, Hungarian Minister of Defence, with Portrait." "The Commanding Generals in Prague from 1621 up to the Present Time" (*continued*). "At the Headquarters of Lieut.-General Josef Freiherrn von Philippovich, 1878." "General Kuropatkin's Memoirs." "A Uniform Map of the Whole World." "On the Reform of the Military Penal Code." "Progress in Foreign Armies in 1909: A. Germany."

Kavalleristiche Monatshefte. Vienna: March, 1910.—"Tradition." "Cavalry Telegraph Patrols." "Scheme and Incompleteness." "The

Attack by Marguerite's Cavalry Division at Sedan" (*concluded*). "The Organisation of the Field Medical Service with Cavalry Divisions According to the New Medical Regulations of 27th January, 1907." "Kisbér." "Fighting Moments of Cavalry According to Historical War Data." "The Training System of the Servian Cavalry."

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th February, 1910.—"The Empire of the Pacific." "The Principles of Rational Gymnastics." "The Battle of the Future" (*continued*). "Table of the Naval and Military Estimates of the Principal Military Powers of Europe in 1909." 28th February.—"The Empire of the Pacific" (*continued*). "The Principles of Rational Gymnastics" (*continued*). "The Battle of the Future" (*continued*).

FRANCE.—*Journal des Sciences Militaires.* Paris: 1st March, 1910.—"Essay on the Instruction of the Cavalry Regiment." "Some Ideas on Cavalry" (*concluded*). "The Question of the Black Troops and the Recruiting of Natives in Algeria." "Machine Gun Support of Artillery." "War and Obligatory Service" (*concluded*). 15th March.—"The *Millième* and its Military Applications." "A Contribution to the Study of the General Advanced Guard: Tactical Work on the Map." "Method of Employment of Field Artillery in France and Germany." "How to Organise Cyclist Units."

Revue d'Infanterie. Paris: February, 1910.—"Automatic Rifles." "The Japanese in Manchuria (a Strategic Study)." "The New Field Service Regulations of the English Army." "The Chaouïa and its Pacification: A Study of the French Action in the Casablanca Region." "A Study on the Tactical Employment of the Infantry Machine Gun."

Revue de Cavalerie. Paris: February, 1910.—"Celebrated Cavalry Combats: Egglofsheim (22nd April, 1809)." "Cavalry Evolutions and Cavalry Combat in Germany and France" (*concluded*). "The Regulations of 1910" (*continued*). "Programmes and Reports of Practical Exercises of Cadres" (*continued*). "The New Act Relating to the Constitution of the Cadres and Effectives of the Cavalry."

Revue d'Artillerie. Paris: January, 1910.—"Artillery Covered Positions in Manchuria." "Pointed Ball Cartridge in Spain."

Revue Militaire Générale. Paris: February, 1910.—"The Spaniards in Morocco." "The Manœuvres of the Army of the Bourbonnais in 1909." "The Eve of Beaumont." "Analysis of the Field Service Regulations of the English Army."

Revue d'Histoire. Paris: March, 1910.—"The Armies of Louis XIV. in 1674" (*continued*). "The Soldiers of the Revolution and of the Empire" (*concluded*). "The Campaign of 1813: The Preliminaries" (*continued*). "The War of 1870-71. The National Defence in the Provinces" (*continued*).

Revue Militaire des Armées Etrangères. Paris: March, 1910.—"The Imperial German Manœuvres in 1909." "The Committee of Imperial

Defence in Great Britain." "The Operations Round Mélilla in 1909" (*continued*).

GERMANY.—*Militär-Wochenblatt.* Berlin: 1st March, 1910.—"Military Society of Berlin: Lecture (MacMahon's Operations from Châlons to Sedan)." "Gymnastic Training in the Japanese Army." "On the Broadening of the Education of the People." "Peasants on the Chess Board" (*concluded*). 3rd March.—"Observations on the Activity of the Cavalry Division at the Kaiser Manœuvres, 1909." "Fire of Field and Heavy Artillery Against Guns under Cover." 5th March.—"Service Jubilees." "Observations on the Activity of the Cavalry Divisions at the Kaiser Manœuvres, 1909" (*continued*). "Military Technical Review: State of the Motor Industry: 2. Abroad" (*continued*). 8th March.—"Obituary Notice: Lieut.-Colonel H. W. L. Moedebeck." "Observations on the Activity of the Cavalry Divisions at the Kaiser Manœuvres, 1909" (*concluded*). "More of the Appraisement of Fire Effect." "South America Again." 10th March.—"War Experiences of the Russian Sapper Battalions and the Organisation Proposals Founded on Them." "The Medical Service in the South-West African Campaign, 1904-1907." "Sketches of Napoleon's Generals." "New Regulations for the Swedish General Staff." 12th March.—"Battle-Strength Firing Lines." "War Experiences of the Russian Sapper Battalions and the Organisation Proposals Founded on Them" (*concluded*). "Our Shackled Army." 15th March.—"Battle-Strength Firing Lines" (*continued*). "Confused Cavalry Thoughts." 17th March.—"Tactics and Training of Infantry." "Battle-Strength Firing Lines" (*concluded*). 19th March.—"The Centenary Festival of the War Academy." "The Belgian Manœuvres in 1909." "Military-Technical Review: State of the Motor Industry Abroad" (*continued*). 22nd March.—"On the Gymnastic and Lance Exercises of the Cavalry." "The Fight at Weissenburg and the Battle of the Yalu." "The Rejuvenating of the Russian Officers' Corps." 24th March.—"The Fight at Weissenburg and the Battle of the Yalu" (*concluded*). "The Military and Naval Development of Antwerp and its Importance, in especial the Siege of 1832." 26th March.—"The Military and Naval Development of Antwerp and its Importance, in especial the Siege of 1832" (*concluded*). "The Most Important Russian Races and the Army." 31st March.—"Close and Thin Firing Lines." "Handling the Reins." "Military Review: Automatic Train Safety Apparatus, Braam System." "The War Memorial in the South-West."

Artilleristische Monatshefte. Berlin: February, 1910.—"What Lessons can be Drawn from the Experiences of the War in East Asia, 1904-05, for the Use of the Artillery in Field War?" "The Separation of Guns and Field Howitzers." "The Technic of the Supply of Ammunition of the German Field Artillery." "The Handling of Arms and Fire Training.—II." "More on the Life of Heavy Guns." "Mechanism for Regulating the Length of the Recoil in Barrel-Recoil Guns."

Jahrbücher für die Deutsche Armee und Marine. Berlin: March, 1910.—"Training for War." "March Performance, March Preparations and March Alleviations" (*concluded*). "Proficiency in Arms in Germany, France, Russia, and its Effect on Readiness for War." "More on the

New Infantry Firing Regulations." "The Universal Kokotović Sight." "Lieut.-General Rohne's Fifty Years' Service Jubilee."

ITALY.—*Rivista di Artiglieria e di Genio.* Rome: January, 1910.—"The Calculation of the Reciprocal Effects of the Fire of Opposing Batteries in Siege Practices." "About the Co-efficient of Terrestrial Refraction." "Inventions of the Piedmontese Artillery in the XVIIIth Century." "Analytical Process to Determine the Capacity of Certain Types of Condensers." "Observations on Buildings Damaged in the Earthquake at Siena."

Rivista Militare Italiana. Rome: 16th March, 1910.—"The Military Spirit of Italy During the Past Centuries" (*continued*). "Character and Intelligence in the Functions of Military Command." "The Water System of the Region Massowah-Asmara-Axum-Adigrat, etc." "Fortress Warfare." "The Cottian Alps. A Descriptive Essay" (*continued*). "Maritime Strategic Geography and Coast Defence" (*continued*). "Military Medicine with Regard to the Two Years' Service." "The Cadres of the Army." "The Soldier's Books and His Vocabulary."

SPAIN.—*Revista Téchnica de Infantería y Caballería.* Madrid: February, 1910.—Has not been received.

Revista Científico- Militar Biblioteca Militar. Barcelona: 10th March, 1910.—"Lessons of the Riff War" (*continued*). "Our War in Morocco, Judged by a German." "The Dominion of the Air." "The Grand German Manœuvres, 1909." 25th March.—"Lessons of the Riff War" (*continued*). "Reconnaissance on the "Zoco El Jemiss."" "Modifications of the German Manœuvre Regulations." "Organisation of the Machine Gun Units in Italy." "Nomination to Commands in the Italian Army."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: March, 1910.—"Imperfections of Sight, and Aptitude for Military Service." "Collective Pointing and the French Artillery Firing Methods" (*concluded*). "The Cyclist Question" (*concluded*). "The Employment of Sappers at the Brigade Manœuvres of the 2nd Division."

UNITED STATES.—*Journal of the Military Service Institution.* Governor's Island: March-April, 1910.—"Military Training and the Schools" (Gold Medal Prize Essay, 1909). Same Subject (Silver Medal Prize). Same Subject (Honorable Mention). "An American Gibraltar." "On Being a Soldier." "The Detail System." "The Regular Army in the Civil War. III.: The Artillery." "The Evolution of Warfare" (*concluded*). "Co-operation of Land and Sea Forces." "Comment and Criticism."

Journal of the United States Artillery. Fort Monroe: January-February, 1910.—"Competitive Tests of Azimuth Instruments at Fort Monroe." "Military Efficiency." "Grenades." "A Ship Study of H.M.S. *Indomitable.*" "Mine Commander's Board." "Coast Artillery Reserves."

NOTICES OF BOOKS.

The Fleet Annual and Naval Year Book, 1910. Compiled by LIONEL YEXLEY. The Westminster Press: London, 1910. Price one shilling.

This is the first time that Mr. Yexley's Annual, which has reached its fifth year of publication, has come under our notice, and its compiler must at least be congratulated on his enterprise, although we cannot congratulate him on the polemical tone of his "Foreword," as he styles his preface to the present edition.

A Naval Annual, moreover, as the term is understood in these days, is primarily intended as a work of reference, and so far as it is a record of naval events, it should be strictly impartial. In his first chapter on "The Naval Events of the Year," Mr. Yexley would have been better advised if he had not raked up certain unfortunate incidents, which the whole Service has gladly let drop into oblivion, and with the true inner history of which he is clearly not acquainted, while the marked bias he displays against that distinguished and deservedly popular officer, Lord Charles Beresford, will certainly not be received with favour by his naval readers.

With much that Mr. Yexley says in his chapter on "Navy Leagues and their Ways" we fully agree, as both the Navy League and the recently founded Imperial Maritime League have done much to lay themselves open to hostile criticism, and the composition of the latter body from the naval point of view certainly leaves much to be desired. The chapters on "Submarines *v.* Battleships," "The Navy and its Reserves," "Colonial Navies," "Engineering Progress," and "Comparison by Points," with its Tables, are all of interest; but the chapter on "Patriotism in Parliament" is the veriest fustian, and utterly out of place in a Naval Annual.

Part II., which is devoted to "The Navies of the World," contains the usual lists of ships with their dimensions, guns, etc., prefaced by an account of the present progress of ships, etc., and other information, while the principal details of the latest Estimates are also given. In compiling his list of the German battleships we notice the *Baden* is given as one of the three sisters of the *Nassau*; this is a mistake, the *Posen* being the ship in question, built to replace the old *Baden*, which has been condemned; he has also committed himself to details in regard to the *Thüringen* and her two sisters, which are only problematical, and are not even given in this year's issue of the *Taschenbuch der Kriegsflotte*, which is a semi-official publication. The Annual is remarkably well illustrated, contains many interesting portraits and other naval photographs, is well got up, and should have a future before it if Mr. Yexley will remember that politics are completely out of place in a Naval Work of Reference, as this presumably is intended to be.

Letters from the Peninsula, 1808-1812. By Lieut.-General Sir WILLIAM WARRE, C.B., K.T.S. Edited by his nephew, The Rev. EDMOND WARRE, D.D., C.B., M.V.O. London: John Murray, 1909.

We can gather from the interesting letters of Sir William Warre that the writer was one of those modest and retiring soldiers who accept as sufficient such rewards as may be bestowed upon them, and do not repine at the greater worldly success of many of their contemporaries and brothers-in-arms, men, probably, of no higher talent and, certainly, not distinguished from them by the superior value of their services in the field.

William Warre was born at Oporto in April, 1784, the son of an English merchant of a family long established in Portugal. A soldier by choice, Warre, in November, 1803, obtained a commission in the 52nd Regiment, and served for fifteen months in that regiment which, at the time, formed part of the famous light brigade that was being trained at Shorncliffe under Sir John Moore. In April, 1805, Warre, now twenty-one years of age, purchased a troop in the 23rd Light Dragoons, and served for two years in Ireland with that regiment. Anxious to complete his military education, Warre, in 1807, obtained admission to the Staff College, then established at High Wycombe; but on the decision of England to despatch in 1808 a force under Sir Arthur Wellesley to the Peninsula to assist Spain and Portugal to throw off the yoke of Napoleon, Warre, in consequence of his knowledge of the Portuguese language, was immediately selected for service on the staff.

Having been appointed aide-de-camp to Major-General Ferguson, one of the brigadiers of the expedition, Warre was present at Roliça and Vimeiro. Ferguson's brigade was not closely engaged at Roliça, but at Vimeiro it bore a full share of the French attack, and the young aide-de-camp, a good observer, writes enthusiastically of the conduct and skill of Sir A. Wellesley, and of his own brigadier; and of the fine courage of the rank and file of his brigade. The British troops, indeed, fought nobly in these the two first actions of the Peninsular War, and Warre's words, "Every soldier seemed a hero," were well deserved.

Having recovered from a severe attack of enteric fever—the too common result of the exertions and exposure of active service—Warre joined the staff of Major-General William Beresford, afterwards Field-Marshal Lord Beresford, and served with him in Sir John Moore's advance into Spain and subsequent retreat to Corunna. Beresford's brigade covered the embarkation of the British Army, and he and his aide-de-camp were the last men to leave the shore.

Two months after Corunna, in March, 1809, General Beresford was selected for the very difficult duty of reorganising the Portuguese Army, in which long protracted and disheartening task the tact and zeal of Warre, and his family connection with Portugal, enabled him to render essential service. Under Beresford, Warre saw much fighting, his soldierly spirit keeping him in the field in spite of frequent attacks of illness.

Perhaps the most interesting of Warre's letters are those describing in his modest and unexaggerated style the storms of Ciudad Rodrigo and Badajos, and the battle of Salamanca; but the value of his book rests rather in the light thrown on the formation and conduct of the Portu-

guese Army under its English commanders and trainers, than in the description of battles and sieges contained in its pages.

Warre's Peninsular services having been rendered exclusively on the Staff, and, for the most part, moreover, on the Staff of foreign troops, his letters cannot claim the intimate interest of the narratives of regimental officers, such as Sir George Napier, Sir John Kincaid, Grattan of the Connaught Rangers, Blakeney of the 28th, and others. From their glowing pages we can imagine the triumphs and the sufferings of war, and we may almost realise the majesty with which the British soldier fights. To those removed, as staff officers are, from close association with the rank and file, the soldier is too apt to appear but as a pawn in the game of war; and thus it is that the writings of most officers so employed make but a tepid appeal to our feelings. They may stir our minds, but can hardly warm our hearts.

To this rule the letters of Sir William Warre scarcely form an exception; yet from the nature of his duties, from his opportunities of observation, and from his sympathetic and generous character, they have a decided value, and we thank Dr. Warre for their publication.

PRINCIPAL ADDITIONS TO LIBRARY, MARCH, 1910.

British Columbia Coast Names, 1592-1906. By Captain J. T. Walbran. 8vo. (Presented.) (Government Printing Bureau.) Ottawa, 1909.

Field Fortification—Notes on the Text Books. By Lieut.-General H. D Hutchinson, corrected to date by Colonel A. C. Macdonnell. Crown 8vo. 4s. (Presented.) (Gale & Polden.) London, 1910.

What to Apply in Tactical Problems. By Captain A. F. Becke. Crown 8vo. 3s. 6d. (Kegan Paul, Trench, Trübner & Co., Ltd.) London, 1909.

Romance of La Rhune. By Commander Hon. H. N. Shore, R.N. 2 Vols. Royal 4to. and 1 Case Plans, Imp. 4to. (Presented.) n.p., n.d.

Tactics and Monitor for Knights of the Order of the Temple. By F. W. Sumner. 12mo. (Presented.) San Francisco, 1897.

Comprehensive Geography of the Chinese Empire and Dependencies. By L. Richard. Translated into English, revised and enlarged by M. Kennelly. 8vo. 15s. (T'Usewei Press.) Shanghai, 1908.

The War in Wexford—An Account of the Rebellion in the South of Ireland in 1798, Told from the Original Documents. By H. F. B. Wheeler and A. M. Broadley. 8vo. 12s. 6d. (John Lane.) London, 1910.

L'Esprit de la Guerre Navale. By Captain R. DAVELNY. 3 Vols. 8vo. 10s. (Berger-Levrault et Cie.) Paris, 1909-10.

Le Génie à Melilla. By General J. MARVA Y MAYER. 8vo. (Presented.) Madrid, 1909.

War and the Arme Blanche. By ERSKINE CHILDERS. 8vo. 7s. 6d. (Presented.) (Edward Arnold.) London, 1910.

The Great Civil War in Dorset, 1642-1660. By A. R. BAYLEY. 8vo. 10s 6d. (Barnicott & Pearse.) Taunton, 1910.

Krieg gegen die Französische Revolution 1792-1797. Bearbeitet in der Kriegsgeschichtlichen Abtheilung des K. und K. Kriegsarchivs. Vols. 1 and 2. 8vo. 31s. 6d. (L. W. Seidel und Sohn.) Vienna, 1905.

Krieg von 1809. Bearbeitet in der Kriegsgeschichtlichen Abteilung des K. und K. Kriegsarchivs. Vols. 1, 2, 3, and 4. Imp. 8vo. 82s. 6d. (L. W. Seidel und Sohn.) Vienna, 1907-10.

Handbook of the Medical Services of Foreign Armies. Part III., Austria-Hungary. Crown 8vo. 6d. (Presented.) (Mackie & Co., Ltd.) London, 1910.

Machine Gun Tactics. By Captain R. V. K. APPLIN. 8vo. 6s. (Presented.) (Hugh Rees, Ltd.) London, 1910.

Privateers and Privateering. By Commander E. P. STATHAM, R.N. Crown 8vo. (Presented.) (Hutchinson & Co.) London, 1910.

The Modern Officer of the Watch. By Lieutenant Hon. R. PLUNKETT, R.N. 3rd Edition. 12mo. 2s. (Presented.) (Griffin & Co.) Portsmouth, 1908.

RECENT PUBLICATIONS OF MILITARY INTEREST.

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PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART II.

SECTION II.

MAGAZINE ARTICLES.

(For abbreviations, *see* page 549.)

AERIAL NAVIGATION.

The Superiority of Airships. By Major Paul Renard. R.D.D.M., 1st November.

The Flight of Birds and the Ornithoplanes. By Captain Etévé. R. du G., October (to be continued).

Aeroplane Motors. O.M.Z., November, p. 1789.

Heavy Batteries and the Captive Balloon. O.M.Z., September.

The Paris Aviation Exhibition. E., 1st and 8th October.

The International Airship Exhibition at Frankfurt-o.-M. 1909. K.T.Z., Heft 8, p. 381.

Shooting against Airships. By Lieut. von Schatte. K.T.Z., Heft 8, p. 361.

The Question of Fighting Airships. A.M.B. (II.), October, p. 265.

The Importance from a Military point of view of Blériot's Flight across the Channel. I.R. (Suppl. 128), p. 451.

Remarks on the Theory of Aeroplanes. By Captain Pagezy. R. d'A., August.

Trials for Aeroplane Engines. E., 3rd December.

The Use of Dirigibles in War. I.R. (Supp.), p. 465.

Balloons and Dirigibles in War. By Major H. L. Hawthorne. U.S.A., September, October.

Military Aviation. By Major H. Bannerman-Phillips. U.S.M., November.

The Weights of Biplanes and Monoplanes. E., 12th November.

The Rheims Aviation Week. By Colonel F. G. Stone. P.R.A.I., November.

The Encouragement of Aviation. E., 26th November, p. 727.

ARTILLERY.

Why should not the Howitzer be the Chief Weapon of the Artillery? By General N. Rohne. J.D.A.M. (II.), October, p. 357.

Shooting against Airships. By Lieut. von. Schatte. K.T.Z., Heft 8, p. 361.

The Q.F. Gun and Modern War. By Major Emile Mayer. B.U., November.

Q.F. Field Guns, with Shields. By Captain Compana. (A review by Belgian General Staff.) B.P.B.M., 25th and 31st October (to be continued).

Guns for the Attack of "Dirigibles." By Lieut.-Col. Korzen. O.M.Z., November, p. 1727.

A Method for Measuring Ranges with the Austro-Hungarian Field Gun. By Captain Schranzhofer. O.M.Z., November, p. 1737.

Field Artillery in Conjunction with other Arms. By V. N. V.S., No. 9, p. 213.

The rôle of Field Artillery in Fortress Warfare. By I. Kobilin. A.J., No. 8, p. 809.

Theory and Practice in the Field Artillery. By Major Morello. J.S.M., 15th November.

Further Details concerning the Schneider-Danglis Mountain Gun. By Rut. A.J., No. 9, p. 977.

Field Artillery in Fortress Warfare (conclusion). By I. Kobilin. A.J., No. 9, p. 921.

Account of the Work done in the Fortress Section of the Officers' Artillery School by Officers of the Land Fortress and Siege Artillery during 1908. By A. R. A.J., No. 9, p. 965.

What Lessons are to be drawn from the War in the Far East in 1904-05 as to the Employment of Artillery in Field Operations. A.M.B. (II.), November, p. 318.

Innovations which appear desirable in the next Practice Instructions of the German Field Artillery. A.M.B. (II.), November, p. 342.

Action of the Artillery in the New (German) Cavalry and Infantry Training Manuals. A.M.B. (II.), November, p. 359.

Remarks on German Foot Artillery. A.M.B. (II.), November, p. 375.

Notes on the Conduct of Fire for Field Artillery. By Major Seeger. A.M.B. (II.), September, p. 182.

The New Organization of the Austro-Hungarian Field Artillery. A.M.B. (II.), September, p. 189.

Foot Artillery Schools in the German Army. A.M.B. (II.), September, p. 211.

Field Artillery Entrenchments according to the Russian Field Fortification Manual. A.M.B. (II.), September, p. 218.

The Action of Artillery from Indirect Fire Positions against Attacking Infantry at Close Ranges. (Translated from German.) R. d'A., August.

Artillery Field Firing at Sissonne in 1908 (concluded). By Colonel Lithier. J.S.M., 1st and 15th October.

The Question of the Employment of Batteries of Light Artillery with Cavalry Divisions. By H. C. L. J.S.M., 1st October.

Modern Artillery Tactics (to be continued). By General Rohne. L.S.M., 1st and 15th October.

Ballistical Remarks. By Cranz. A.M.B. (II.), October, p. 241.

Six Problems for Field Batteries. A.M.B. (II.), October, p. 253.

French Artillery at Night Firing. By Lieut.-Gen. Rohne. A.M.B. (II.), October, p. 260.

The Question of Fighting Airships. A.M.B. (II.), October, p. 265.

Heavy Field Artillery. By Major-Gen. Castellani. R.A.G., September.

The Goniostadiometer with Horizontal Base: System Braccialini. By Colonel Bennati. R.A.G., September.

Considerations on the Employment of Field Artillery, with special reference to covered positions. By Captain Danfranchi. R.A.G., October.

The French Camel Artillery in the Sahara (to be continued). By Captain L. Voinot. R. d'A. September.

The New German Field Guns (to be continued). By F. Jung. R. d'A., September.

The Mitrailleuse in 1870 (continued). By F. R. (French General Staff). R.H., September, October, November.

The question of clearing the crest when shooting with Field Guns and Howitzers from covered positions. By Lieut.-Col. Freiherr v. Smola, Austro-Hungarian Field Artillery. M.A.G., November, p. 817.

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Extracts from the Annual Report of the School of Gunnery, Horse, Field and Heavy Artillery, 1909.

Drill Regulations for the Cavalry of the German Army, 1909.

ABBREVIATIONS.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
A.F.	Bulletin du Comité de l'Afrique française	M.	2 frs.	Paris.
A.F.H.	Archiv für Schiffs- und Tropen-Hygiene	½ M.	*	Leipzig.
A.H.M.	Annales d'hygiène et de médecine coloniale	M.	3 frs.	Paris.
A.J.	Artilleriskii Jurnal	M.	*	St. Petersburg.
A.M.B.	Artilleristische Monatshefte	M.	m. 2.50	Berlin.
A.M.P.	Archives de médecine et de pharmacie militaires	M.	2 frs.	Paris.
A.M.S.	Proceedings of the Aldershot Military Society	...	/6	London.
A.N.R.	Army and Navy Register	W.	15 c.	Washington.
A.Q.R.	Imperial and Asiatic Quarterly Review	Q.	2/6	Woking.
A.S.C.	Army Service Corps Quarterly	Q.	2/-	Aldershot.
A.S.M.	Allgemeine schweizerische Militärzeitung	W.	*	Basle.
B.A.	Broad Arrow	W.	/6	London.
B.Mag.	Blackwood's Magazine	M.	2/6	Edinburgh.
B.M.J.	British Medical Journal	W.	/6	London.
B.P.B.M.	Bulletin de la Presse et de la Bibliographie militaires. (Supplement to J.M.O.B.)	F.	*	Brussels.
B.S.C.	Bulletin international des sociétés de la croix rouge	M.	50 c.	Geneva.
B.U.	Bibliothèque Universelle	M.	2.50frs	Lausanne.
	Budgets of Foreign Countries			
C.J.	Cavalry Journal	Q.	2/6	London.
C. Mag.	Canadian Magazine	M.	25 c.	Toronto.
C.M.G.	Canadian Military Gazette	F.	10 c.	Montreal.
C.O.J.	Colonial Office Journal	Q.	1/6	London.
Con.	Der Continent	M.	m. 1.25	Berlin.
C.R.	Contemporary Review	M.	2/6	London.
D.M.S.	De militaire Spectator	M.	1 fr. 50	Haarlem.
D.M.Z.	Deutsche militärärztliche Zeitschrift	½ M.	*	Berlin.
E.	Engineering	W.	/6	London.
Ec.	Economist	W.	/8	London.
Emp. R.	Empire Review	M.	1/-	London.
E.R.	Edinburgh Review	Q.	6/-	London.
F.M.F.	Feuille militaire Fédérale	V.	40 c.	Berne.
F. Rev.	Fortnightly Review	M.	2/6	London.
I.J.	Intendanski Jurnal	M.	*	St. Petersburg.
I.M.T.	Indisch Militair Tijdschrift	M.	1 fr. 50	Batavia.
Inj.	Injeniernii Jurnal	M.	*	St. Petersburg.
I.R.	Internationale Revue (Armeen und Flotten)	M.	m. 3.25	Dresden.
J.A.M.S.	The Military Surgeon. Journal of the Assoc. of Military Surgeons	M.	35 c.	Carlisle, Penn.
J.A.S.	Journal of the African Society	Q.	6/-	London.
J.D.A.M.	Jahrbücher für die Deutsche Armee und Marine	M.	m. 2.50	Berlin.
J.M.O.B.	Journal militaire Officiel	M.	*	Brussels.
J.M.S.I.	Journal of the Military Service Institution	2 M.	50 c.	Governor's Island, N. York
J.M.S.S.	Journal of the Military Scientific Society (Russian)	Q.	1 Ro. 50kop.	St. Petersburg.
J.R.A.M.	Journal of the Royal Army Medical Corps	M.	2/-	London.
J.R.C.I.	Journal of the Royal Colonial Institute	M.	/6	London.
J.S.M.	Journal des Sciences militaires	½ M.	*	Paris.
J.U.S.I.	Journal of the Royal United Service Institution	M.	2/-	London.

W., published weekly; F., fortnightly; M., monthly; Q., quarterly; V., at irregular intervals; A., annually.

* Periodicals which can only be purchased by subscription.

ABBREVIATIONS.—contd.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
K.M. ...	Kavalleristische Monatshefte	M.	k. 2.	Vienna.
K.T.Z. ...	Kriegstechnische Zeitschrift	M.	m.1.50	Berlin.
L.... ...	Lancet	W.	-/7	London.
L.A.F. .	Comité de l'Asie française, Bulletin ...	M.	2.25frs	Paris.
L.B.M. ...	La Belgique militaire	W.	25 c.	Brussels.
L.R.I. ...	La Revue d'Infanterie	M.	2 frs.	Paris.
L.S.M. ...	Le Spectateur militaire	F.	2 frs.	Paris.
M.A.G. ...	Mittn. über Gegenstände des Art.- u. Genie-Wesens	M.	*	Vienna.
M. Art. ...	Memorial de Artillería	M.	*	Madrid
M.B.A.R.	Monthly Bulletin of the Bureau of American Republics	M.	25 c.	Washington.
M.C. ...	McClure's Magazine	M.	25 c.	New York.
M.I.E. ...	Memorial de ingenieros del ejército ...	M.	*	Madrid.
M.R. ...	Marine-Rundschau	M.	m. 2.	Berlin.
M.W.B. ...	Militär-Wöchenblatt	½W.	20 pf.	Berlin.
N.C. ...	Nineteenth Century	M.	2/6	London.
N.D. ...	National Defence	M.	1/-	London.
N.G.M. ...	National Geographic Magazine	M	25 c.	Washington.
N.I.A. ...	Nation in Arms	M.	/3	London.
N.M.B. ...	Neue Militärische Blätter	W.	60 pf.	Berlin.
N.R. ...	National Review	M.	2/6	London.
O.M.Z. ...	Streffleurs militärische Zeitschrift, zugleich Organ der militär-wissenschaftlichen Vereine	M.	*	Vienna.
P.J. ...	Preussische Jahrbücher	M.	m.2.50	Berlin.
P.R.A.I. ...	Journal of the Royal Artillery	M.	2/6	Woolwich.
P.U.S.I. ...	Journal of the United Service Institution of India	Q.	2 Rs.	Simla.
Q.D. .	Questions diplomatiques et coloniales...	F.	75 c.	Paris.
Q.R. ...	Quarterly Review...	Q.	6/-	London
R.A.G. ...	Rivista di Artiglieria e Genio	M.	*	Rome.
R.C. ...	Revue de Cavalerie	M.	*	Paris.
R. d'A. ...	Revue d'Artillerie...	M.	*	Paris.
R.D.D.M.	Revue des Deux Mondes...	½M.	3 frs.	Paris.
R. du G....	Revue du Génie militaire	M.	2.50frs	Paris.
R.E.J. ..	Royal Engineers' Journal	M.	1/6	Chatham.
R.I.C. ...	Revue Indo-Chinoise	F.	1.50frs	Hanoi.
R.I.M. ...	Revue du service de l'intendance militaire	M.	2 frs.	Paris.
R.H. ...	Revue d'Histoire	M.	2 frs.	Paris.
R.M.B. ...	Revue de l'Armée belge	2 M	*	Liège
R.M.E. ...	Revue militaire des Armées étrangères	M.	1 fr.	Paris.
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R.M.S. ...	Revue militaire suisse	M.	*	Lucerne.
R.T.C. ...	Revue des Troupes Coloniales	M.	2 frs.	Paris.
S.G.R. ...	Saint George's Review	M.	1/-	London.
S.Z.A.G. ...	Schweizerische Zeitschrift für Artillerie und Genie	M.	*	Frauenfeld.
U.S.A. ...	United States Artillery Journal	2 M.	50 c.	Fort Monroe
U.S.C. ...	United States Cavalry Association Journal	Q.	50 c.	Fort Leavenworth
U.S.I. ...	United States Infantry Association Journal	Q.	50 c.	Washington.
U.S.M. ...	United Service Magazine (Colburn's) ...	M.	2/-	London.
V.R.K. ...	Vyestnik Russkoi Konnitsi	F.	*	St. Petersburg.
V.S. ...	Voyennii Sbornik (Military Journal) ...	M.	*	St. Petersburg
V.T.H. ...	Vierteljahrshefte für Truppenführung und Heereskunde	Q.	*	Berlin.
J.U.S.I. (N.S.W.)	Journal of the United Service Institution of New South Wales	A.	*	Sydney.

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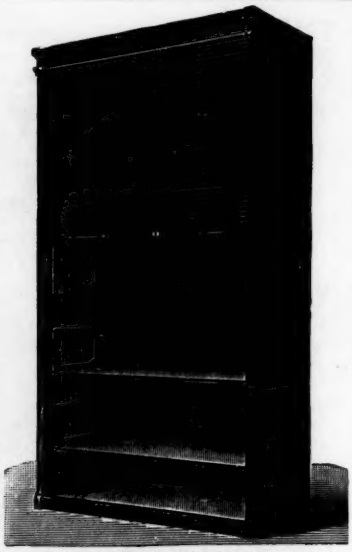

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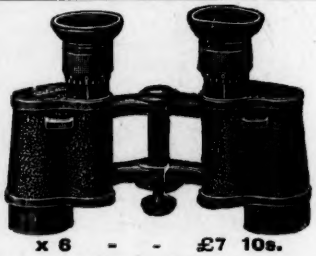

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Captain, 12th London Regiment.
Assistant Curator, Royal United Service Museum, Whitehall.

LONDON:
C. GILBERT-WOOD,
5, ARUNDEL STREET, W.C.

The Journal of the Royal Artillery.

THIS Journal, which was formerly known as the "Proceedings" of the R.A. Institution, contains articles and information on Artillery matters, some highly technical and some general. Articles on general Military topics also appear.

In the Translations and Précis, which are an important feature, an attempt is made to keep up with the progress of Artillery on the Continent.

All members of the Royal Artillery Institution receive the Journal.

Any officer serving in the Navy, Army, Special Reserve, Territorial Force, and Colonial Permanent Forces can receive this Journal post free on application to the Secretary, R.A. Institution, at an annual subscription of 20s.

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The Journal

OF THE

Royal United Service Institution.

VOL. LIII. 1909-1910.

APPENDIX.

THE SEVENTY-NINTH ANNIVERSARY MEETING.

MARCH 1st, 1910.

THE ROYAL
MONMOUTHSHIRE
MILITIA.

The Journal
of the
Royal United Service Institution.

APPENDIX.

THE SEVENTY-NINTH
ANNIVERSARY MEETING
OF THE
Royal Artillery
WEAPONS
MARCH 1st, 1910.

Royal United Service Institution.

THE SEVENTY-NINTH ANNIVERSARY MEETING WAS HELD AT THE ROYAL UNITED SERVICE INSTITUTION, WHITEHALL, S.W., ON TUESDAY, MARCH 1ST, 1910, LIEUT.-GENERAL H. D. HUTCHINSON, C.S.I. (CHAIRMAN OF THE COUNCIL) PRESIDING.

The CHAIRMAN: I will call upon the Secretary to read the Notice convening the Meeting.

The SECRETARY (Lieut.-Colonel A. Leetham) read the Notice.

ANNUAL REPORT.

The Council has the honour to submit its report for the year 1909.

ROYAL VISITS.

During the year the Museum was visited by Their Royal Highnesses the Prince of Wales, the Duke of Connaught and Princess Christian.

COUNCIL.

The Council has to deplore the death of Major-General Sir G. H. Marshall, K.C.B., who joined the Council in 1902, and was its Chairman in 1907-8.

Colonel F. D. V. Wing, C.B., Staff Officer R. H. A. and R. F. A. Headquarters Staff, Aldershot, was selected to fill the vacancy under Section 9, Chapter IV. of the Bye-Laws.

Colonel J. E. Edmonds, R.E., General Staff, was appointed by the Army Council to succeed Brigadier-General J. A. L. Haldane, C.B., D.S.O., as the War Office Official Member.

MEMBERS.

The Council has pleasure in reporting that during the past year 356 Officers joined the Institution. There were 132 withdrawals and 109 deaths: of the latter 58 were Life Members. The total number of Members on December 31st was 5,535, an increase on the previous year of 115 Members.

The details of Officers joining were as follows :—

Regular Army	222
Royal Navy	50
Territorial Army including Yeomanry	43
Special Reserve	13
Royal Marines	11
Indian and Colonial Volunteers	10
R.N.R. and R.N.V.R.	7
	356

During the year the Council made an appeal to Members to make a special effort to introduce new Members. This resulted in an accession of 143 new Members. The Council hopes that Members will continue their efforts in this direction.

FINANCE.

It will be seen from the Accounts that the year's working has given a credit balance of £11 8s. 11d., a satisfactory result inasmuch as at the conclusion of the previous year there was a debit balance of £805 19s. 3d. The improvement is mainly due to the increased number of new Members' subscriptions and to a reduction in the cost of the Journal, and in the general expenses of the Institution.

The invested funds now amount to £16,676 3s. 11d., which shows a gradual increase since 1895 (the year of transfer to the present buildings), when they stood at £8,761.

MUSEUM.

Many valuable additions have been made to the collection, all of which have been duly recorded in the Journal. Lady Mouat bequeathed the Decorations and Medals of the late Surgeon-General Sir James Mouat,

V.C., K.C.B., consisting of the Victoria Cross, Badge and Pendant of the Order of the Bath, Queen Victoria's Jubilee Medal, Crimean Medal (3 clasps), New Zealand Medal, French Legion of Honour, and the Turkish Crimean Medal.

The number of persons who passed through the turnstile amounted to 22,159, exclusive of a very considerable number of visitors who were introduced by members personally. The receipts from admissions amounted to £460 15s. 0d., a decrease of £170 0s. 0d. on those of the previous year. The sale of the Museum catalogue realised £64 4s. 11d. The Book is likely to continue a source of income for the Institution.

The Journal.

Papers on the following subjects were read and discussed, and the majority have appeared in the Journal. To the authors are due the best thanks of the Institution.

E. T. Scammell, Esq. "The Commutation of Naval and Military Pensions, with Special Reference to the Openings for Suitable Pensioners in our Over-sea Dominions."

Captain E. A. Steel, R.F.A. "Exploration in Southern Nigeria."

Colonel W. Watts, C.B., 3rd Bn. Welsh Regiment. "Special Reserve and Militia: their Respective Advantages and Disadvantages."

The Rev. Canon Edgar Sheppard, C.V.O., D.D. "The Execution and Burial of King Charles I."

Lieut.-General H. D. Hutchinson, C.S.I. "The Fortune of War."

Colonel F. S. Stone, p.s.c. "Defence of Harbours against Naval Airships."

Captain H. W. Richmond, R.N. "The Expedition to Sicily, 1718, under Sir George Byng."

Colonel H. W. Pearse, D.S.O. "The French Raid in Ireland, 1798, and Short Sketches of other Attempts and Landings on the Coast of the United Kingdom."

Major W. H. Greenly, D.S.O., p.s.c., 12th Lancers. "The Cavalry of Frederick the Great: Its Training, Leading, and Employment in War."

J. H. Anderson, Esq., F.R. Hist. Soc., Barrister-at-Law. "The Spanish Succession War in Spain, with Special Reference to the British Action."

T. Miller Maguire, M.A., LL.D. "Readiness or Ruin."

T. Miller Maguire, M.A., LL.D. "National Recuperation."

H. F. Wyatt, Esq. "England's Threatened Rights at Sea."

Vice-Admiral Sir C. Campbell, K.C.M.G., C.B., D.S.O. "The Advantages, Strategical and Commercial, of a Battleship and Ocean-going Steamer Canal between the Forth and the Clyde."

Captain R. V. K. Applin, D.S.O., 14th (King's) Hussars. "Machine Gun Tactics in our Own and other Armies."

T. Clarkson, Esq., M.I.M.E., A.M.I.C.E., A.R.S.M. "The Use of Motors for the Transport of Troops."

Douglas Owen, Esq. "Our Food Supplies."

Captain Howard V. Knox, "Use of Ski, and Training of British Soldiers for Duties on Snow-clad Frontiers."

Major A. B. N. Churchill, p.s.c. "The Army as a Profession."

Major B. Baden-Powell, late Scots Guards. "How Airships are Likely to Affect War."

The thanks of the Institution are also due to the following Officers for Papers and Translations from Foreign Journals contributed by them: *Papers*—Major Sir A. Bannerman, Bart., R.E.; Major W. D. Bird, D.S.O.; Major P. de S. Burney, R.G.A.; Colonel G. J. Harcourt; Brigadier-General R. F. Johnson, C.M.G., R.A.; Lieut.-General H. D. Hutchinson, C.S.I.; Colonel H. W. Pearse, D.S.O.; Colonel von Kortzfleisch, Imp. German Army; Major E. M. Molyneux, D.S.O., 12th Cavalry; Colonel F. J. Davies, C.B.; Colonel J. C. Dwyer, A.V.D.; Major J. Hastings, 6th Bn. W. Yorks Regiment. *Translations:* Lieut.-Colonel E. Gunter, late East Lancashire Regiment; Major-General P. Maitland, C.B.; Major-General J. C. Dalton; L. A. B., and four anonymous contributions. Six Translations were further communicated by the General Staff and four by the Director of Naval Intelligence.

The Institution is indebted to the Lords Commissioners of the Admiralty, to the Army Council, the Secretaries of State for the Colonies and for India, and to the Civil Service Commissioners, for copies of various works issued by their respective Departments, and to the Speaker of the House of Commons for Parliamentary papers.

The exchange of Journals with Foreign Governments, and with many Scientific Societies in this and other countries, has been continued.

The Council desires to place on record that at "The Exhibition of Latest Inventions," held at St. Petersburg during 1909, under the auspices of H.I.H. The Tsarevitch Alexis Nicolœvitch, where the various Naval and Military Journals of different countries formed one section of the Exhibition, the Judges, recognising the great usefulness of the JOURNAL OF THE R.U.S.I. in the cause of naval progress, unanimously awarded it the Great Gold Medal Diploma. The Council of the Institution regards this award as a personal and well-deserved honour conferred on the Editor, Capt. H. Garbett, R.N.

LIBRARY.

The number of books added to the Library during the year was 250, bringing the total number of volumes in the Library up to 29,917.

The number of Members subscribing to the Lending Library has increased from 277 to 296.

Donations of books and maps have been received from the Governments of Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Russia, Spain, Sweden, Switzerland, and the United States. The thanks of the Council have been conveyed to the several Governments for these donations.

During the year all the books in the Library of the Institution have been renumbered and relabelled, and have all been entered up in the new Catalogue in the Library. Certain works of no naval or military value have been eliminated from the Library.

Mr. R. Dane (late Sergeant-Major R.E.) having reached the age limit, retired from the service of the Institution on the 15th December last. He had been Library Clerk for 15 years, during which period he rendered excellent service to the Library and to the Institution. Mr. J. H. Harper (late 5th Dragoon Guards), assistant Library Clerk, has been appointed Library Clerk in his place.

"Royal United Service Institution Gold Medal and Trench-Gascoigne Prizes."

The subject of the Military Essay for the Gold Medal and Trench-Gascoigne Prizes was :—

DATA.

(1) The present organisation and strength of the Territorial Force.

(2) The present approved system of raising the Territorial Force.

(3) The present system for obtaining and training Officers.

(4) The present amount of obligatory training.

(5) The financial basis to be approximately the present Territorial Force Estimates.

(1) Working from the foregoing data, to offer in full detail suggestions as to the mode of training and preparing, during the periods of instruction, the Officers and Non-Commissioned Officers to become efficient in the arms to which they respectively belong.

(2) Next, the methods in which, by supplementary voluntary work in private time, the Officers and Non-Commissioned Officers can themselves increase their personal efficiency.

(3) Other sources, besides those at present officially recognised, from which a further supply of Officers and Non-Commissioned Officers can be obtained.

The Council much regrets that only two essays have been submitted, and these, in the unanimous opinion of the referees, were not of sufficient merit to warrant an award of the Gold Medal. The Trench-Gascoigne Prizes will therefore not be awarded, but the Council has decided to give an honorarium of twenty guineas to the writer of the best essay.

The names of the Referees are :—

Major-General E. C. Bethune, C.V.O., C.B., p.s.c., Commanding West Lancashire Territorial Division.

Brig.-General R. C. B. Haking, p.s.c., General Staff, Southern Command.

Colonel F. I. Maxse, C.V.O., C.B., D.S.O., Commanding Coldstream Guards and 3rd London Territorial Infantry Brigade.

Their decision will be made known at the Anniversary Meeting.

Members of the Council.

The following Members retire from the Council, having completed three years' service :—

Admiral-of-the-Fleet The Lord Walter Kerr, G.C.B.
Major-General Sir T. Fraser, K.C.B.
Colonel J. H. Bor, C.M.G., A.D.C., R.M.A.
Lieutenant G. R. Maltby, M.V.O., R.N. (retired).

The following are the names of the Candidates nominated for the vacancies :—

Royal Navy (*2 vacancies*).

Rear-Admiral Hon. A. E. Bethell, C.M.G., Director of Naval Intelligence.
Admiral-of-the-Fleet The Lord Walter Kerr, G.C.B.
Lieutenant G. R. Maltby, M.V.O., R.N. (retired).

Regular Army (1 *vacancy*).

Major-General Sir T. Fraser, K.C.B., C.M.G., p.s.c.

Royal Marines (1 *vacancy*).

Colonel J. H. Bor, C.M.G., A.D.C., Commandant R.M.A., Portsmouth.
General Sir W. P. Wright, K.C.B.

A. Leetham, Lieut.-Colonel,
Secretary.

Whitehall,
10*th February*, *1910.*

DR. **REVENUE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1909.** CR.

1908. £ s. d.		*1909.* £ s. d.	£ s. d.
241 12 1	To Sale of Journal	219 4 5	
169 3 4	,, Advertisements in Journal	173 2 9	
			392 7 2
134 10 6	,, Lending Library	144 5 6	
50 0 0	,, Sale of Books	8 8 0	
			152 13 6
631 8 9	,, Admissions to Museum	460 15 0	
4 14 1	,, Sale of Museum Pamphlets	11 14 3	
85 3 0	,, Sale of Museum Catalogues	—	
7 2 0	,, Miscellaneous Museum Receipts ...	22 9 6	
			494 18 9
6 0 0	,, Miscellaneous Receipts	2 6 0	
201 7 11	,, Rent of Lecture Theatre	208 17 4	
			211 3 4
3,594 19 0	,, Members' Subscriptions	3,665 1 0	
147 5 9	,, Extra Subscriptions	141 6 8	
220 10 0	,, Entrance Fees	312 18 0	
502 10 0	,, Life Subscriptions	789 9 0	
			4,908 14 8
458 17 3	,, Dividends and Interest	444 18 8	
750 0 0	,, Government Grant	750 0 0	
			1,194 18 8
505 19 3	,, Balance carried to Balance Sheet		
£8,011 2 11			£7,354 16 1

1908. £ s. d.		*1909.* £ s. d.	£ s. d.
1,631 12 4	By Journal Printing	1,473 2 5	
526 5 9	,, Postage	492 13 3	
90 0 0	,, Literary Services	31 0 0	
			1,996 15 8
213 13 1	,, Library, Purchase of Books	167 12 9	
119 5 6	,, ,, Binding ,, ...	212 7 3	
87 0 8	,, Periodicals and Newspapers	81 9 4	
			461 9 4
85 3 0	,, Museum Catalogues	—	
91 15 10	,, ,, Sundries		110 10 2
1,050 0 0	,, Salaries	1,100 0 0	
807 14 10	,, Wages	810 10 10	
67 10 0	,, Attendants' Clothing	72 3 11	
55 5 0	,, Pensions and Gratuities	100 0 0	
			2,082 14 9
580 0 0	,, Ground Rent	580 0 0	
92 15 0	,, Water	75 5 0	
568 15 0	,, Rates	561 9 2	
58 10 0	,, Taxes	58 10 0	
			1,275 4 2
78 12 10	,, Insurance		84 19 7
74 6 0	,, Fuel	71 1 0	
103 0 11	,, Lighting	110 2 11	
			181 3 11
589 15 5	,, Repairs	207 4 5	
177 11 9	,, House Expenses and Sundries ...	193 5 7	
			400 10 0
163 10 0	,, Advertising	182 15 1	
55 0 6	,, Shorthand Notes at Lectures	57 15 0	
75 16 6	,, Lecture Expenses, Balance	21 7 6	
			261 17 7
26 5 0	,, Audit and Accountancy	26 5 0	
—	,, Legal Expenses	3 3 0	
			29 8 0
64 6 0	,, Postage of Letters, Stamps, etc. ...	97 0 5	
405 14 7	,, Printing and Stationery	317 2 1	
10 3 3	,, Telephone	9 19 9	
11 10 0	,, Gold Medal	5 0 0	
			429 2 3
34 10 5	,, Reception Expenses		
15 3 9	Bank Interest		29 11 9
			£7,343 7 2
	Balance carried to Balance Sheet ...		11 8 11
£8,011 2 11			£7,354 16 1

DR. **BALANCE SHEET 31ST DECEMBER, 1909.** CR.

DR. **BALANCE SHEET 31st DECEMBER, 1909.** CR.

1908. £ s. d.		*1909.* £ s. d.	£ s. d.
36,822 13 5	To Balance, 31st December, 1908	36,016 14 2	
	,, Revenue Account	11 8 11	
£36,822 13 5		£36,028 3 1	
£36,016 14 2	To Balance	£36,028 3 1	
695 19 10	,, Sundry Creditors	602 1 8	
27 3 4	,, Subscriptions paid in advance	28 2 0	
2,057 15 11	,, General Reserve Fund—		
	31st December, 1908 ...	£2,120 7 10	
62 11 11	Dividends, 1909	64 4 1	
			2,184 11 11
1,591 4 0	To Balance due to Bank		2,143 12 1
£40,451 9 2			£40,986 10 9

1908. £ s. d.		*1909.* £ s. d.	£ s. d.
805 19 3	By Balance from Revenue Account...		
36,016 14 2	,, Balance		36,028 3 1
£36,822 13 5			£36,028 3 1
23,101 16 8	By Outlay on New Building ...	...	£23,101 16 8
280 0 0	,, Furniture	...	280 0 0
148 12 0	,, Journal Index	148 12 0	
—	less sales	0 16 0	
			147 16 0
—	,, Library Catalogues	300 0 0	
—	,, ,, Less Sales ...	43 1 6	
			256 18 6
—	,, Museum Catalogues	234 7 6	
—	,, ,, Less Sales ...	64 4 11	
			170 2 7
—	,, Waterloo Pamphlets, New Stock		31 0 0
	,, Investments—		
450 0 0	,, £437 18s. 2d. Canada 3 p.c. (at cost)	450 0 0	
1,200 0 0	,, £1,230 13s. 7d. Consols 2½ p.c.(at cost)	1,200 0 0	
2,656 6 9	,, £2,421 18s. 8d. India 3½ p.c. (at cost)	2,656 6 9	
2,984 0 0	,, £3,044 17s. 11d. India 3 p.c. (at cost)	2,984 0 0	
3,076 5 3	,, £3,076 5s. 4d. Nottingham Corporation 3 p.c. (at cost) ...	3,076 5 3	
1,300 0 0	,, £1,181 10s. Oxford Corporation 3 p.c. (at cost)	1,300 0 0	
2,325 0 0	,, £5,000 Hull and Barnsley Railway Ordinary Stock, valued 31st December, 1897 (Trench Gascoigne Gift)	2,325 0 0	
500 0 0	,, £473 17s. 9d. Canada 3½ p.c. (Hoskier Bequest) (at cost)...	500 0 0	
1,041 1 8	,, £1,115 5s. 4d. Ceylon 3 p.c. (at cost)	1,072 0 6	
1,079 6 2	,, £1,198 5s. 1d. London County Council 3 p.c. (at cost) ...	1,112 11 5	
			16,676 3 11
307 18 2	,, Sundry Debtors		319 0 7
1 2 6	Cash in hand		3 12 6
£40,451 9 2			£40,986 10 9

We have examined the above Balance Sheet and Revenue Accounts with the Books and Vouchers and certify the same to be correct.

All our requirements as Auditors have been complied with. We have verified the Cash Balance and Investments set out in the Balance Sheet, and, subject to the General Reserve Fund being sufficient to provide for the depreciation of the Lease and for any depreciation in the value of the investments, we are of opinion that the Balance Sheet is properly drawn up and correctly shows the position of the Royal United Service Institution on the 31st December, 1909.

61½, Fore Street, E.C.
4th February, 1910

WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors.

CHESNEY MEMORIAL MEDAL FUND.

DR. 31st DECEMBER, 1909. CR.

1909.		£ s. d.	*1909.*		£ s. d.
Jan. 1.	To Balance, 31st December, 1908	57 10 6		Medal	7 10 0
June 2.	„ 6 mths. Div. £236, Bengal & North-Western Ry. Pref. Stock	3 16 3	Dec. 31.	By Balance in favour of Fund	57 12 9
Dec. 1.	„ „ „ „ „ „ „	3 15 10			
		£65 2 9			£65 2 9

We hereby certify the above Account to be correct,

61½, Fore Street,
4th February, 1910.

WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors.

TRENCH GASCOIGNE PRIZE FUND.

DR. 31st DECEMBER, 1909. CR.

1909.		£ s. d.	*1909.*		£ s. d.
Jan. 1.	To Balance, 31st December, 1908	6 1 9	Mar. 6.	By 1st Prize Essay, 1909	31 10 0
May 15.	„ 6 mths. Div., £1,862 19s., North Brit. Ry. Deb. Stock	26 10 0	Mar. 6.	„ 2nd „ „ „	21 0 0
Nov. 12.	„ „ „ „ „ „	26 6 4	Dec. 31.	„ Balance in favour of Fund	6 8 1
		£58 18 1			£58 18 1

We hereby certify the above Account to be correct,

61½, Fore Street,
4th February,

WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors

Tabular Analysis of the State of the Institution,

[A full analysis for each year from 1831 will be found in the Report for 1897.]

Year 1st Jan. to 31st Dec.	Annual Subs. received.	Entrance Fees.	Receipts (from all sources).	Life Subs. received.	Amount of Stock.	Invested in the purchase of Books, &c.	No. of Vols. in Library.	No. of Members on the 31st Dec.
	£	£	£	£	£	£		
1831	654	...	654	1,194	...	...	...	1,437
1841	1,450	...	1,643	186	6,000	243	5,850	4,243
1851	1,136	131	1,292	66	666	34	10,150	3,188
1861	2,122	305	2,899	266	2,846	99	11,812	3,689
1871	2,455	237	3,677	538	7,748	202	15,501	3,923
1881	2,893	238	4,967	645	13,670	240	19,920	4,577
1891	2,640	189	5,004	454	21,942	153	23,845	4,204
1892	2,930	605	9,429	1,572	24,805	142	24,099	4,657
1893	2,929	468	8,334	1,095	22,172	157	24,471	4,961
1894	3,598	215	6,625	606	12,840	200	24,680	5,016
1895	3,760	353	7,117	921	8,761	204	25,947	5,198
1896	3,802	351	7,225	876	8,761	245	26,161	5,347
1897	3,910	401	10,902†	959	12,386	381	26,381	5,550
1898	3,964	265	6,935	493	12,386	376	26,592	5,620
1899	3,834	167	6,646	251	12,841	430	27,142	5,583
1900	3,879	174	7,170*	235	13,791	264	27,492	5,491
1901	3,816	197	6,955	358	14,192	289	27,792	5,443
1902	3,806	188	7,063	449	14,491	309	28,167	5,427
1903	3,743	178	6,597	409	15,459	299	28,337	5,351
1904	3,684	184	6,707	448	15,459	301	28,636	5,313
1905	3,713	253	7,756	611	15,459	324	28,851	5,369
1906	3,714	226	6,803	519	16,488	204	29,114	5,404
1907	3,733	211	6,615	573	16,549	256	29,427	5,408
1908	3,741	220	7,205	502	16,612	213	29,667	5,420
1909	3,806	312	7,354	789	16,676	167	29,917	5,535

† A donation of stock valued at £2,323, and £1,301 realised by the letting of seats to view Her Majesty's Diamond Jubilee Procession, are included in this amount.

* This amount includes a donation of £500.

The CHAIRMAN: I have now to recommend the Annual Report to your consideration, and I would ask you to take it as read.—Agreed to.

But before putting to the Meeting a formal motion for its adoption, I desire to say a few words about it; and afterwards I shall be glad if any Member will offer any remarks he may wish to, or will ask a question on any point which may require elucidation.

First, then, Gentlemen, I think we may congratulate ourselves that, on the whole, we have had a satisfactory and successful year. As regards numbers, we are, on the first day of this year, 115 stronger than on the 1st January, 1909, notwithstanding 241 losses during the year by deaths and withdrawals. You will recollect that this time last year a special appeal was made to members to interest their friends in the Institution, and to bring in recruits. Well, the result of that appeal has been useful, and I hope members will continue their individual efforts to make known the many advantages of this Institution, and to bring in fresh blood. It goes without saying that the more support we have, the more good we can do. We have now on the Books 5,535 Members. If only one out of every five of these could each recruit for us only one new member in the year, what a grand accession of strength would be the result! I see no reason why it should not be done, and I hope the Members will give it their attention.

As regards Finance, our position to-day is certainly satisfactory. The Report which is in your hands shows that during the year that is past we have succeeded in keeping our expenditure within the limits of our revenue. We are, in fact, £11 8s. 11d. to the good on the year's working. We have also a sum of £16,676 3s. 11d. invested in various funds. Colonel Hill, who is Chairman of the Finance Committee, will presently give you more detailed information regarding various items in the accounts which will make them quite clear to you. I will only say that while the control is in his capable hands we feel sure that the best interests of the Institution from a financial point of view are, and will be, carefully guarded; and I hope that for many years to come we shall have the benefit of his advice and support in all those important matters which come under the head of "ways and means."

Next, as regards our Journal, I am sure you will agree that under Captain Garbett's Editorship it continues to maintain a high standard of excellence and interest. We print and send out every month 5,500 copies of the Journal. It travels to every part of the world, wherever officers of the Army and Navy are serving; and I may say that it surprises me that advertisers do not avail themselves, to a much greater extent than they do, of the facilities it offers for their purposes. The expenses of printing and publishing and distributing the Journal are very heavy indeed. It is, in fact, our chief expense, and we may legitimately hope to do better with the advertisement department in the future to relieve us of some part of

that expense. This is a point to which the Council will pay attention during the ensuing year.

The printed Report which is in your hands gives you some interesting details of the Papers, etc., which have been contributed to the Journal during the last twelve months, and in this connection I may remind members that the Editor is always ready and glad to receive and to consider contributions. It is a matter of congratulation that the excellence and usefulness of the Journal have been recognised by the Commissioners of the Exhibition held in St. Petersburg during the year under review. They have awarded a gold medal Diploma for it, and the Council have had pleasure in stating in the Annual Report that they consider this award a personal compliment paid to, and well-deserved by, the Editor, Captain Garbett.

Next, as regards the Library, my friend and colleague, Colonel Lonsdale Hale, will presently tell you more about it than I can. I will only say that I wish more members would visit the Library and see it for themselves. I think they would be surprised and pleased. They would be surprised to see how adequate and up-to-date it is in all respects, and they would be pleased by its order and admirable arrangement. We all know with what devotion and perseverance Colonel Lonsdale Hale has given his time and his best energies to this work for some years past, and I would add that in Major Wylly we have a Librarian as efficient, as adequate, and as hard-working as a man could be. I have no hesitation in saying that this Library is quite the first of its kind, and we owe a great debt of gratitude to those who have recently overhauled it so thoroughly, re-arranged it, and catalogued it, so that, as a military and naval Library of reference, it is now of the greatest value to Officers and Students.

Finally, as regards the Museum, I need only say that it has received many additions during the year, that the Museum Committee, under Commander Caborne, look most carefully after its interests, and that all who come to see it go away impressed and pleased.

Well, Gentlemen, I have touched briefly on each of the Sections which make up the life and work of this Institution, and I have expressed my belief that in each of those Sections, and with the Institution as a whole, we are prospering and doing well. In support of this conviction, I may mention that many Royal visits have recently been paid to the Institution, and both interest and approbation have been graciously expressed by the Royal visitors. This is an honour and an encouragement to us, which I am sure we all sincerely appreciate. Since the report which you now hold was printed, their Majesties the King and Queen, bringing Prince Henry of Prussia with them, have visited the Museum and inspected its treasures; also their Royal Highnesses the Prince and Princess of Wales with their children; also His Royal Highness the Duke of Connaught; and also His Serene Highness Prince Alexander of Teck. These evidences of Royal interest in what we are doing here are very gratifying.

I must also refer to the official support and countenance we receive from the Admiralty and from the War Office. We keep in close touch with them through their representatives on the Council, and I am glad to say that our relations with them both have been, and continue to be, of the most cordial description. I desire also to make due acknowledgments to the Press, which has always been ready to help us by publishing notices and reports of our meetings and discussions and happenings.

In conclusion, Gentlemen, I would say—and I think you would wish me to say—as other out-going Chairmen have said before me, how much we owe to our indefatigable Secretary, Colonel Leetham. I have already paid a deserved tribute to the work done by the Chairmen and and members of our various Committees. They, I am sure, will support me in saying that our Secretary is the mainspring of the machine. His industry is prodigious ; his energy is tireless ; he is an encyclopædia of information on all matters connected with his important post ; and he is, in fact, as a good Secretary should be, all things to all men. I have had the greatest assistance from him during my term of office, and I am grateful for it. I must say, too, he has a most capable and willing assistant in Captain Sargeaunt, who is always precise and industrious in the discharge of his duties.

One word more. I have not referred yet to my colleagues on the Council. They would not wish me to say much, but I must say this much, that my work as their Chairman has been rendered easy, and my position pleasant, by their kind co-operation and loyal support ; and I am sincerely grateful to them. I beg to move "That the Report, with the Accounts as circulated, be adopted."

Admiral of the Fleet Sir GERARD NOEL, K.C.B., K.C.M.G. : I have much pleasure in seconding the motion.

Colonel W. A. HILL, C.B. : General Hutchinson and Gentlemen. At the Annual General Meeting it has always been customary for the Chairman of the Finance Committee to make some observations on the items in the Financial Statement for the past year, so I will now endeavour to make a short comparison between the receipts and expenditure of the past year and those of the previous year. Taking, in the first place, the Balance Sheet for 1909, there is a small increase which the Chairman has referred to of £11 coming from the increase of revenue over expenditure to be added to the Balance of £36,016 in 1908, which brings the Balance up to £36,028 on December 31st. The creditors are less by £93. The dividends, which always fluctuate slightly, have increased by £4, and it is gratifying to know that our General Reserve has increased by £63, and now stands at £2,120. This is a sum which, you remember, has been set aside, and has been gradually increasing, for the eventual redemption of the lease. The

Balance due to the Bank on the 31st December may seem to you a large one, but it only existed for a few days, and a very short time after the 31st December it was entirely liquidated: and we now have a considerable balance in hand, at any rate sufficient to go on with. The various catalogues are treated as capital expended, which is gradually replaced by the sales from time to time. The value of the investments remains about the same; there has been hardly any fluctuation in their value. Turning now to the Revenue Account the sale of the Journal has decreased by £22, principally owing to the Japanese Government no longer requiring the 50 copies they used to take from us. The receipts from the Journal generally are quite satisfactory. The receipts from the Lending Library have increased by £10, which is very satisfactory, because it shows a greater interest is taken in naval and military works by the Members. The admissions to the Museum are less by £170. That seems a great deal, but it is accounted for partly by the bad weather that we experienced during the year, and then there were fewer visitors to London compared with those of the previous year, who came for the White City Exhibition. The Members' subscriptions show an increase of £71, and the Life Members' subscriptions one of £287. As to expenditure, the printing of the Journal cost less by £158, and the postage is less by £34. That is principally owing to the care of the Secretary in keeping the amount of matter in the Journal within the limits of the contractors' estimates; very great care has been taken in that respect. The weight of the Journal has therefore been decreased, and so the postage has diminished by £34. I may say in passing that a saving of a penny in the postage of each Journal makes a difference to our finances of something like £18 per month. There is a considerable increase in the amount expended in binding books for the Library, the amount of increase being £95, but that expenditure has, I think, been very well incurred, as a visit to the Library will soon demonstrate. The whole of the books in the Library, or nearly the whole of them, are now beautifully bound and set up. Our repairs are very much less than in the previous year, showing the large diminution of £382. The expenses of the Promotion Lectures are less by £54, owing to the considerably greater interest which has been taken in them, and consequently the larger attendance of officers. The general postage has increased by £33, owing to the special circular which was sent out by the Council appealing to the whole of the members of the Institution for their assistance in endeavouring to introduce fresh members. The expense has been amply justified by the increase in the number of members, as mentioned in the Report. The Council would like to direct the attention of the members to a new slip which has been added to the "Journal," namely, "The form of bequest." We constantly see the notification of large legacies left to other Institutions, many of which are not of such national importance as ours, and which have not nearly the claim upon the public support that our Institution has, which does so much good work among the Services; but we very seldom receive such benefactions. I cannot sit down without expressing the great appreciation of the Finance Committee of their indebtedness to Colonel

Leetham for the very valuable services he has rendered to them and to the Institution in general. He has spared neither time nor trouble, both in the interest of economically administering the funds of the Institution and in increasing its revenue, with the gratifying result that for the first time for the last few years our revenue has this year exceeded our expenditure.

Colonel LONSDALE HALE: I should like first of all to make a few remarks about the Journal. Whether the Journal is good or bad depends of course mainly upon the Editor. I am very sorry indeed that this is the last year of Captain Garbett's Editorship, because it will be very difficult to replace him. He has brought up the Journal—from what it was—to its present level. You must look back as far as I can to see what Captain Garbett has done for the Journal. There are two sources of papers which are specially to be regarded with satisfaction and pleasure. The first is from the War Office. The War Office contributed to the Journal last year four most valuable papers; and not merely that, but the Admiralty communicated four papers also. Then we come to the Lectures. Fortunately, again, Colonel Leetham has come to the rescue, and he has helped the Editor and ourselves in this department. Passing on to the Library, this is the first time I feel happy in talking about the Library. I am not going to say much about it; I simply ask you to go and look at it. Go up and see it in the room above; go and see the catalogue, which is a marvel of literary workmanship, and which has been done, under Major Wylly's superintendence, by Mr. Harper, our Chief Clerk. There is no catalogue, I venture to say, in any Library which beats for beauty of workmanship the catalogue which Mr. Harper has drawn up. You can go to it and by means of our new system of numbering you can get out the books for yourselves. The old system, which I never did like, has died out, and that is due to Major Wylly and Mr. Harper, who have worked very hard indeed at it. The gallery of the Banqueting Hall and the other rooms will be opened to any member who likes to go there, and you will not be able to lay your finger upon any book that has not got its identification number. Of course the main credit for this is due to the bold step taken by the Finance Committee and Colonel Leetham about two years ago, when we were at our worst. They saw what was required and said, "Go ahead, spend what you like, only get the Library in first rate order." When you remember that we have never had that state of things before, that we have always been hard up for money, no wonder we went ahead. I was simply the man at the wheel, looking at these hard workers doing the work. I thoroughly agree with the Chairman, that you will not find any Library in the Kingdom in better order than our Library is in now. In the Map Room there is still something to be done. I look upon that as Commander Caborne's and my own work altogether. We have got it into a certain amount of order, but it is not in perfect order yet. That will be undertaken next year, and I hope we shall bring it up to the same pitch of perfection that the Library is in now. During the year Captain Garbett has been engaged in making a list of our

manuscripts, many of which are of very great value. We have got all the Atlases that do not belong to the works in the Library up in the Map Room; I was going to arrange them myself, but Commander Caborne has undertaken it, and he will make the catalogue. We possess two copies of an Atlas, the value of each of which in the market is £184 at the present time.

Commander W. F. CABORNE, C.B., (Chairman of the Museum Committee): I will not detain the meeting for more than two or three minutes. I merely wish to say that I sincerely trust the members of the Institution have noticed the admirable cleanliness in which the exhibits of the Museum have been kept. I think the greatest possible credit for this is due to Colonel Leetham, his assistant, Captain Sargeaunt, and the other members of the staff, who, one and all, have taken the greatest interest in the Museum. I must confess that I am somewhat disappointed at the paucity of visitors who enter the Museum year after year. The Report shows that some 22,000 people passed the turnstiles during the past year, but considering the value of the exhibits in this great National Museum—because I can call it nothing else—I am surprised that the number has not been at least five times the figures named. Some of our exhibits are absolutely priceless, and we are simply trustees for the Nation with regard to them. We do our best to get the Museum known to the public, and still many people appear to be unaware of its existence. I should like to supplement what the Chairman of the Finance Committee has said with regard to bequests. If we only had a little more money we should be able to purchase many things for the Museum which we cannot at present obtain, because we seldom have any funds with which to buy relics of historical and other interest. It is true we have had two or three very nice bequests left to us recently. In the Report you will notice it is mentioned that Lady Mouat has bequeathed to the Museum the decorations and medals of the late Surgeon-General Sir James Mouat, K.C.B., including the Victoria Cross which he won at Balaclava. Since the Report was printed, we have also had another bequest from General Sir Alexander Elliot, K.C.B., who has left us the picture which is hanging up on the wall of the Theatre, "The Charge of the Heavy Brigade at Balaclava," and also a statue of a Zulu, now in the crypt, both being the work of his own hands. I only wish that other people would follow their excellent example. If we could only get a few more pictures, notably of British Sovereigns, under whom the Institution has flourished, and also of distinguished sailors and soldiers, the attractiveness of this Theatre would be considerably enhanced.

The CHAIRMAN: Does any member wish to make any remarks on the Report and Accounts?

Captain C. SLACK: I should like to make a few remarks. The first is that I am very glad to find we are out of debt, and I hope we shall continue to be so. I am rather disappointed, however, at the number of new members

we obtained during the year. I should have liked to have seen quite double the number. I take credit to myself that I was the means, as I think the Secretary will confirm, of bringing in two new members. There is one important matter in the Balance Sheet with reference to the Rates to which I should like to call attention. If you will refer to the Balance Sheet you will find that the Rates amount to £561. That is an enormous sum for us to pay, and if we could get out of paying it it would leave us with a very large income which could be profitably used. I understand that all the Royal Societies do not pay Rates, and that this Institution, the Royal United Service Institution, is the only one that does so. If any means can be adopted to prevent that sum being paid in Rates, then we should have a very large amount available to apply to useful purposes connected with the Institution.

The CHAIRMAN: What you have said, Sir, will be carefully considered by the Council. The question of the Rates has already been considered by the Finance Committee, and it has been decided to consult an expert on the question of Rates, and to find out what other Institutions pay. If we can make out a case, it will be stated for the consideration of the authorities. The matter is receiving attention, because we do feel that we are charged too much.

Mr. CHARLES BRIGHT: I think it would be very useful if Captain Slack specified what other Royal Societies do not pay Rates.

Captain SLACK: As I understand it, none of the Royal Societies pay Rates.

The CHAIRMAN: We are thoroughly going into the question. It is understood, for instance, the Royal Geographical Society do not pay any Rates. The matter is receiving the attention of the Council.

I will now formally put the Resolution, "That the Report and Balance Sheet be adopted."

The Resolution was then put, and carried unanimously.

Colonel The Honourable O. V. G. A. LUMLEY: I beg to propose, "That the thanks of the meeting be accorded to the Auditors, Messrs. Wilde and Ferguson Davie, for their services, and that they be re-elected Auditors for the ensuing year at a fee of 25 guineas."

Colonel R. B. COLVIN, C.B.: I beg to second that.

The Resolution was put and carried unanimously.

The CHAIRMAN: The under-mentioned officers have been nominated for the vacancies on the Council :—

Royal Navy (Two Vacancies) :—Rear-Admiral Hon. A. E. Bethell, C.M.G., Director of Naval Intelligence; Admiral of the Fleet the Lord Walter Kerr, G.C.B.; Lieut. G. R. Maltby, M.V.O., R.N. (retired).

Regular Army (One Vacancy): Major-General Sir T. Fraser, K.C.B., C.M.G.

Royal Marines (One Vacancy): Colonel J. H. Bor, C.M.G., A.D.C., Commandant R.M.A., Portsmouth; General Sir W. P. Wright, K.C.B.

A ballot will be taken to fill the vacancies, and I will ask you to now kindly fill up the ballot papers. There being no competition for the Regular Army seat, Major-General Sir T. Fraser is hereby elected. Colonel E. T. Rodney Wilde and Lieutenant H. T. A. Bosanquet, R.N. (retired) have kindly consented to act as Scrutineers.

A ballot was then taken, and the CHAIRMAN subsequently announced that Rear-Admiral Hon. A. E. Bethell, C.M.G., Director of Naval Intelligence, and Admiral of the Fleet the Lord Walter Kerr, G.C.B., had been elected to fill the two vacancies on the Council representing the Royal Navy; and Colonel J. H. Bor, C.M.G., A.D.C., Commandant R.M.A., Portsmouth, for that of the Royal Marines.

The CHAIRMAN: The Secretary will now read the Report of the Referees on the 1909 Military Essays.

The SECRETARY: The following is the Report of the Referees :—"I have the honour to report that the Referees for the 1909 Essays, whose letters are attached, have each decided that the better of the two Essays submitted is that marked "Number 1" and bearing the motto "The Framework of an Army." They have also intimated that in their opinion the standard of excellence of the essay is not sufficient to merit an award of the Gold Medal being made, and consequently under the Bye-laws the usual Trench Gascoigne prizes will not be given. The Referees, however, have expressed the opinion that an award by the Council of an honorarium of twenty guineas to the writer of the first essay would be an appropriate premium."

The CHAIRMAN: The envelope containing the name of the candidate having been opened, the writer of the Essay which is judged to be the better of the two sent in, and which is also declared to be worthy of publication in the JOURNAL—and will be published in the JOURNAL—and to which is awarded a Special prize of 20 guineas, is Captain R. F. Jelley, R.E.

Lieut.-General Sir W. H. MACKINNON, K.C.B., C.V.O. (Director-General of the Territorial Force): I propose that a vote of thanks be accorded

to the Referees—Major-General E. C. Bethune, C.V.O., C.B., *p.s.c.*, Brigadier-General R. C. B. Haking, *p.s.c.*, and Colonel F. I. Maxse, C.V.O., C.B., D.S.O., for their valuable services in adjudicating on the Essays." Although it is a matter for great regret that there were not more entries for this Competition, I think that possibly it being the first year of the Territorial Force may have had something to do with it. I sincerely hope that next year the Competition will meet with better success. But, none the less, I think our best thanks are due to these gentlemen for performing their very difficult task, and I beg to propose the Resolution.

Rear-Admiral A. M. FIELD, F.R.S. : I beg to second that.

The resolution was put and carried unanimously.

Admiral Sir R. N. CUSTANCE, K.C.B., K.C.M.G., C.V.O. : In proposing a vote of thanks to the retiring members of the Council it will not be necessary for me to take up the time of the meeting by saying anything beyond that I am sure I am voicing the wishes of the Institution in saying that we very much appreciate the time and trouble which these officers have given to the work of the Institution.

Lieut.-General Sir J. FRYER, K.C.B. : I beg most sincerely to second the vote of thanks. I can safely say that I think, generally speaking, the services which are rendered as free labour, or a labour of love, are perhaps not quite highly enough appreciated by those who visit this Institution. I am sure we are all very grateful to those members of both Services who have given up their time to the work of the Institution. I can only say that personally I remember the Institution some few years ago was in a state of what I might almost call violent melancholia ; and at the risk of speaking, *ad nauseam*, in praise of my old friend, Colonel Leetham, and his Assistants, I can only say now that it bears an air of joy everywhere. I think we are very lucky indeed in the way this Institution is being managed by the Council, and also by the Secretary and his Assistants.

The resolution was put and carried unanimously.

General Sir W. G. NICHOLSON, G.C.B. (Chief of the Imperial General Staff) : I beg to propose :—" That a vote of thanks be accorded to the Chairman, Lieutenant-General H. D. Hutchinson, for presiding at this meeting, and for his services during the past year." It is a very easy task to propose this resolution, because I am sure everybody agrees that General Hutchinson has performed, as usual, the duties which have devolved upon him in the Chair in the most admirable manner. Personally, it is a great pleasure to me to propose this resolution, because I owe a debt of gratitude to General Hutchinson. When I was in India, and was a Captain and Brevet-Major, it was owing to his admirable instruction that I ever passed for promotion to higher rank, and I have owed General Hutchinson a great deal ever since. Everything he has done has been done

well. His urbanity of manner and his lucidity of thought are apparent to everybody. We who know him, the more we know him the better we like him. I have the greatest possible pleasure in proposing the resolution.

Vice-Admiral Sir C. CAMPBELL, K.C.M.G., C.B., D.S.O.: I have much pleasure in seconding the resolution. The Chairman has been kind enough to thank the members of the Council for electing him to be Chairman during his year of office. I can only say that we should have been rather a poor lot if we had not done our best to pull the boat along under such a coxswain.

The resolution was carried by acclamation.

THE CHAIRMAN: I am extremely obliged to you, Gentlemen.

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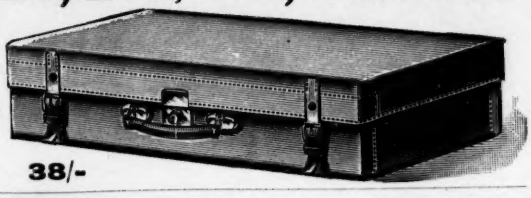

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STAFF COLLEGE, AUGUST, 1909.

The following Officers, whose names are arranged in regimental order, were successful from us at the recent Competitive Examination for admission to the Staff College.

Capt. F. W. L. S. H. Cavendish, 9th Lancers.
,, G. W. Browne, 20th Hussars.
,, F. W. Gossett, Royal Horse Artillery.
,, F. J. A. Mackworth, Royal Field Artillery.
,, C. A. Ker, D.S.O., Royal Garrison Artillery.
,, H. C. L. Cock, Royal Garrison Artillery.
,, H. A. Ramsay, Royal Garrison Artillery.
,, W. B. G. Barne, Royal Garrison Artillery.
,, B. J. Haslam, Royal Engineers.
,, C. O. Place, D.S.O., Royal Engineers.
,, E. G. Wace, Royal Engineers.
,, G. M. James, East Kent Regiment.
,, N. E. Swan, Yorkshire Regiment.
Lieut. E. S. Chance, Royal Welsh Fusiliers.
Capt. D. S. Gilkison, Scottish Rifles.
,, H. R. M. Brooke-Popham, Oxfordshire Light Infantry.
,, J. T. Weatherby, Oxfordshire Light Infantry.
,, A. G. Macdonald, Royal Berks Regiment.
,, E. P. Trew, Royal Marine Light Infantry.
Capt. R. W. M. Stevens, Royal Irish Rifles.
Lieut. K. M. Laird, Argyll & Sutherland Highlanders.
Capt. E. Fitz G. Dillon, Royal Munster Fusiliers.
,, J. B. Jenkinson, Rifle Brigade.
,, D. C. Cameron, Army Service Corps.
,, W. F. C. Gilchrist, 52nd Sikhs.
,, C. L. Peart, 106th Hazara Pioneers.
,, C. W. A. Holmes, 116th Mahrattas.

The following obtained Nominations:

Major I. G. Hogg, D.S.O., 4th Hussars.
,, H. M. Durand, 9th Lancers.
Capt. A. C. Girdwood, D.S.O., Northumberland Fusiliers.
,, C. D. H. Moore, Royal Warwickshire Regiment
Brevet-Major L. H. R. Pope-Hennessy, D.S.O., Oxfordshire Light Infantry.
Capt. G. H. Martin, King's Royal Rifle Corps.
,, C. Ogston, Gordon Highlanders.
,, L. J. Arthur, 26th (P.W.O.) Light Cavalry.

Other Successes obtained last year include:

ARMY QUALIFYING.

TWENTY-ONE PASSED.

WOOLWICH (JUNE).

TWO PASSED

INDIAN POLICE (JUNE).

ONE PASSED.

MILITARY COMPETITIVE.

NINETEEN PASSED.

PROMOTION.

EIGHTY-THREE PASSED.

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